

Global Market Place for Mobile Operators and Service Providers

Section 1 Summary

Use Case Summary			
Use Case ID:	ICT-001	Use Case Type:	Vertical
Submission Date:	October 11, 2018	Is Use Case supporting SDGs	No
Use Case Title:	Global market place for mobile operators and service providers	Domain:	IT & Telco
Status of Case	PoC	Sub-Domain	Mobile roaming Digital Services
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Proposing Organization	Clementvale Baltic OU, Estonia		
Short Description	This use case is a proposal to create global market place for mobile operators and service providers with the use of private Blockchain ecosystem by changing traditional roaming rules and creating new sales channels, using a stable coin for immediate payments.		
Long description	This use case is a proposal to create global market place for mobile operators and service providers with the use of private Blockchain ecosystem. The main goal is to enable mobile operators and service providers to interact directly and securely without any agreements, intermediators and complex integration via smart contracts. This solution significantly simplifies all processes, eliminates old-fashioned roaming technology, shifts principles of interaction, reduces costs on all levels, gives an easy and quick access to global market for all players in a short period of time with almost zero investment, gives a good opportunity for mobile subscribers to use services at reasonable rates worldwide, changes principles of settlements, making them in real time in stable coin. We created one of the stable token that equals 1 SDR used in telecommunications, which is tied to the basket of five world currencies. We named it SDRt (SDR Token). It's the unit of payment given to providers for their services, i.e., the price of services is measured in these units.		

SDG in Focus (when applicable)			
Value Transfer:	SDR tokens representing fiat money	Number of Users:	100+
Types of Users:	Any MNO/MVNO and/or service provider, mobile subscribers		
Stakeholders	Any MNO/MVNO and/or service provider		
Data:	Offers on mobile and non-telecom services published by operators and service providers, Requests on services, User ID, Service provider's digital code, SDR tokens flow, Other transactions related to rendering services		
Identification:	Nodes verify all transactions via consensus algorithm		
Predicted Outcomes:	<ul style="list-style-type: none"> - Elimination of any agreements, intermediators and complex integration - Change of traditional roaming rules - Reduction of mobile services costs - Secure and direct interaction between mobile operators or operators and service providers via smart contracts - Quick access to global market for small and medium-sized mobile operators and service providers - Provision of own subscribers with local rates around the world in a short period of time with almost zero investments - New sales channels for service providers 		

Overview of the Business Problem or Opportunity
<p>Current problems:</p> <ul style="list-style-type: none"> • Long and complicated process to implement mobile services in roaming, requiring negotiation between operators, signing a lot of roaming agreements, physical interconnection of networks, different tests and other integration processes; • High rates for mobile subscribers in roaming, which increase cost of this service and cause big inconvenience for end users; • Low consumption of services, which effects on decreasing of mobile operator's revenue due to huge amount of "silent roamers"; • Huge expenditures on infrastructure support; • Necessity for mobile operators to have a large staff to maintain commercial, legal and technical processes of mobile roaming services; • Marketing expenditures for service providers to promote their services <p>Blockchain technology is a platform to construct a global trusted marketplace, where mobile operators and service providers can interact directly with each other without agreements, intermediators and costly integration.</p> <p>Opportunities:</p>

For mobile operators:

- Simple and low-cost access to global roaming market.
- Provision of own mobile services to subscribers of other operators worldwide.
- Possibility to resell mobile and non-telecom services from global providers to own subscribers.

For service providers (content providers, software vendors, insurance, transportation, etc):

- New sales channels to subscribers of mobile operators.

For subscribers:

- To get high quality mobile and non-telecom services worldwide at affordable prices.

For all participants:

- Elimination of intermediators in sales chains.
- Reduced time and costs for mutual settlements between participants.
- Significantly reduced costs on technical, legal and commercial levels

Why Distributed Ledger Technology?

- Community-controlled DLT system ensures participants that the system operates according to the strictly defined software-driving rules.
- Unlike classical centralized approach, there is no party or organization that could change rules on its own. Therefore, there are minimal risks for participants and their investments.
- Minimal investments into hardware and software infrastructure.
- Exceptional reliability of the system because of inherent security, redundancy and self-restoring capability of DLT platform.

Section 2 Current process

Current Solutions

Current roaming technology is cumbersome, expensive and hard to implement as it requires a long process, including negotiations between mobile operators, approval of business cases, commitments, legal confirmation, signing hundreds of roaming agreements with each operator in each country, necessity to be a GSMA member, interconnection of networks, technical tests on different levels, proper equipment and other integration processes. It bears cost on the integration of carriers, measured in years and millions of dollars. As a result, the roaming services market has become virtually monopolized by the major carriers, and it is closed to regional carriers. The latter actually lose their subscribers at a time when they are traveling abroad.

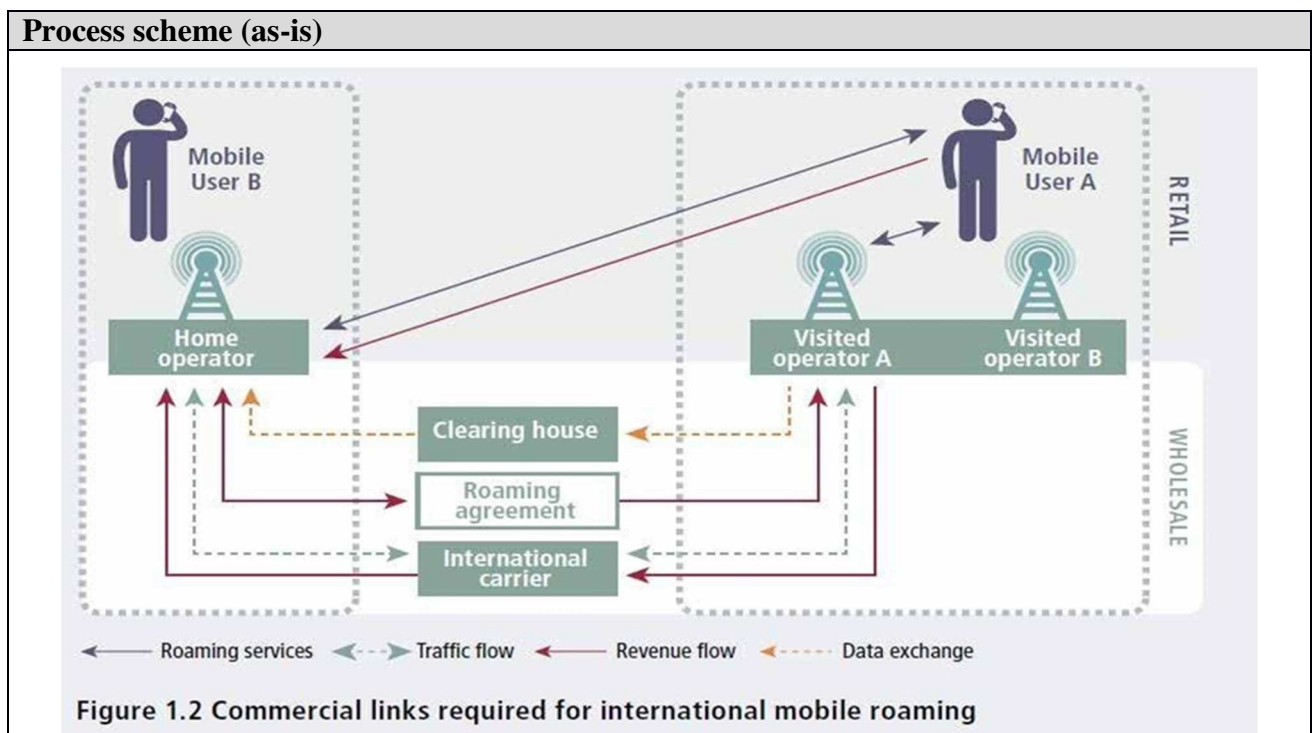
As for service providers it takes time and bears additional cost and efforts to reach customers.

Existing Flow (as-is)

Step	User Actions	System Actions
1.	MNO/MVNO determines a contact and negotiates with another international MNO/MVNO	n/a

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Existing Flow (as-is)		
Step	User Actions	System Actions
2.	MNO/MVNO of one country signs roaming agreement with another international MNO/MVNO	n/a
3.	Mobile operators of both countries arrange interconnection of their networks and conduct necessary technical tests to provide roaming services	n/a
4.	Mobile operators of both countries exchange rates for their services and establish tariff plans for own subscribers	Tariff plans are published on operator's server
5.	Mobile subscribers choose/buy tariff plans via operator's user interface (web account or application) and travel abroad	Mobile subscribers of Home operator are registered in the network of Visited operator on arrival
6.	Mobile operators render roaming services based on agreed terms	n/a
7.	Mobile operators exchange invoices and make settlements	n/a



Data and information (as-is)		
Data	Type	Description
1		
2		

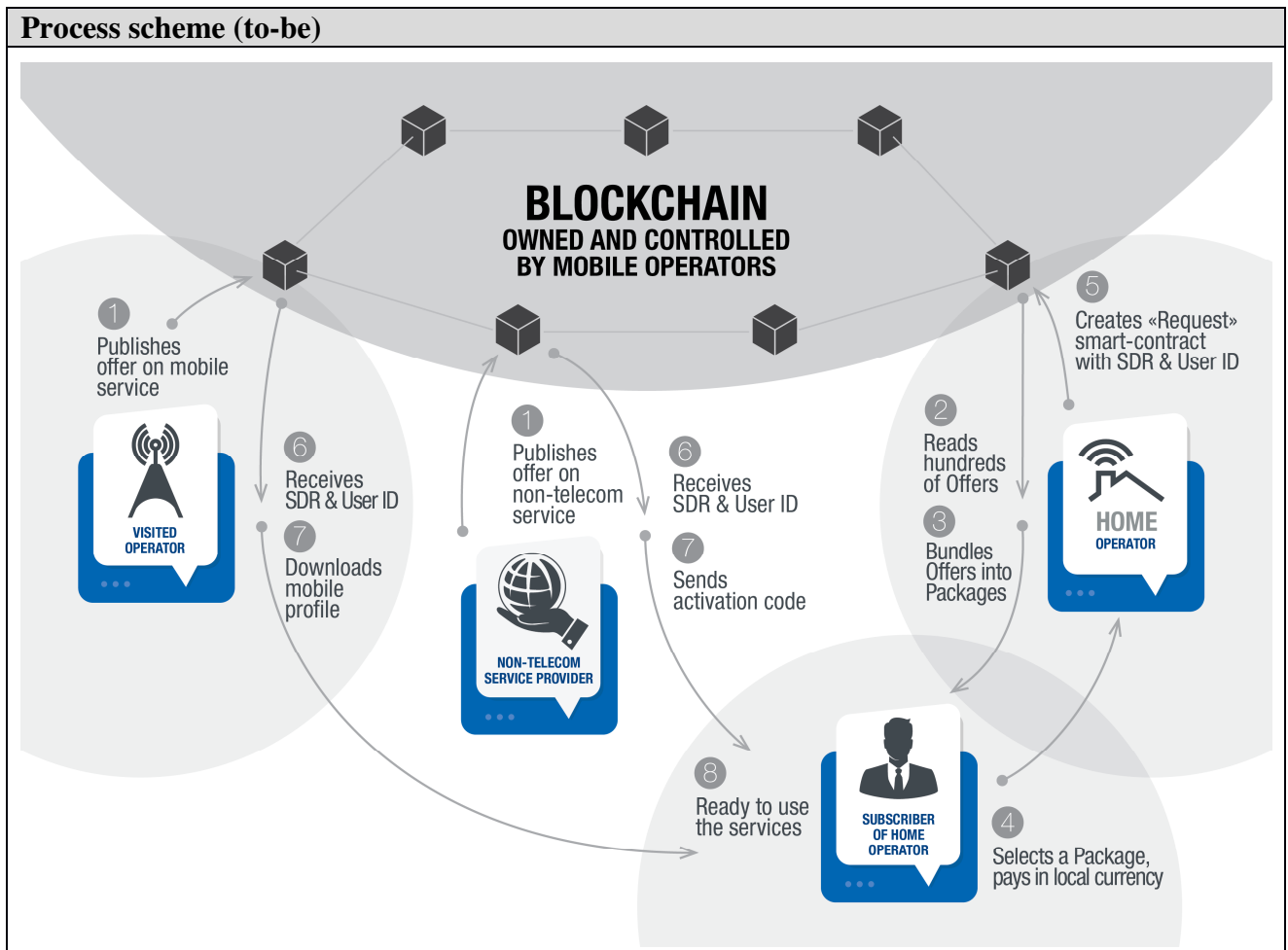
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Participants and their roles (as-is)		
Actor	Type/Role	Description
1	MNO/MVNO	Any mobile network operator or mobile virtual network operator providing its own subscribers with international roaming services
2	Mobile subscribers	Mobile subscribers consuming international roaming services

Section 3 Expected process

Expected Flow (to-be)		
Step	User Actions	System Actions
1.	Any MNO/MVNO (Visited operator) and/or service provider (SP) publishes Offer on its own mobile services/non-telecom services onto Blockchain	“Offer” smart contract is created in Blockchain and system verifies it by all nodes
2.	Any MNO/MVNO joined Blockchain reads Offers published by another MNO/MVNO and/or SP via Blockchain account	n/a
3.	Any MNO/MVNO (Home operator) chooses Offers, edits them, bundles into packages and proposes them to its own subscribers with the use of User interface (web or app)	n/a
4.	Mobile subscriber of Home operator selects a package and pays for it in local currency	n/a
5.	Home operator creates Request smart contract with the user ID, other technical information and SDRt payment and sends it to Blockchain	“Request” smart contract is created in Blockchain and systems verifies it by all nodes
6.	Visited operator or SP receives request via Blockchain and accepts request supplying encrypted mobile profile data or SP’s code and other technical information necessary to get a service	“Accept” smart contract is created in Blockchain, system verifies it and matches to “Request” smart contract created at previous step
7.	Home operator downloads mobile profile received from Visited operator to subscriber’s multi-SIM via OTA platform and/or activates SP’s code.	n/a
8.	Mobile subscriber of Home operator is activated in the Visited operator’s network on arrival or in the SP’s system	n/a

Expected Flow (to-be)		
Step	User Actions	System Actions
9.	Visited operator or SP serves the subscribers of Home operator according to the contract purchased and reports service consumption to the Blockchain.	<p>Transactions about service consumption are published in Blockchain.</p> <p>SDR tokens are transferred from account of Home Operator to account of Visited Operator according to consumptions.</p>



Participants and their roles		
Actor	Type/Role	Description
1	MNO/MVNO	Any mobile network operator or mobile virtual network operator providing its own subscribers with international roaming services
2	Mobile subscribers	Mobile subscribers, consuming international roaming services
3	Nodes / Validators	Nodes ensure data integrity and provide consensus.

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Participants and their roles		
Actor	Type/Role	Description
4	Service provider	<u>Any service provider, such as content providers, software vendors, insurance companies, logistic or transport organizations, hotels, etc.</u>

Data and information		
Data	Type	Description
1	Offer	Service with detailed description and price (in SDRt) published by any MNO/MVNO
2	Request	Order on an Offer selected by a subscriber of any MNO/MVNO
3	SDRt	SDR token – a stable token tied to SDR (Special Drawing Rights). This token is used for payment for services of mobile operators and service providers
4	User ID	Logical entity used to identify a user on a software, system, website or within any generic IT environment. It is used within any IT enabled system to identify and distinguish between the users who access or use it.
5	Mobile profile	Set of keys for secure registration of a SIM-module in the mobile network of Mobile Operator who owns this Mobile profile
6	Smart Contract	Computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract . Smart contracts allow the performance of credible transactions without third parties. These transactions are trackable and irreversible.
7	SP's code	Special digital code of service provider needed for service activation

Security and privacy
Sensitive information is encrypted. All transactions are signed by digital signatures of all participants. Personal data of end user dose not store in Blockchain. Only internal ID of end user is transmitted for further direct identification by Visited operator or SP in it's network/system.

Main Success Scenario
<ol style="list-style-type: none"> 1. Mobile operators and service providers interact directly and securely without agreements, intermediators and additional integration via smart contracts. 2. Any small and medium-sized MNO/MVNO and/or service provider becomes global in a very short period of time. 3. Mobile subscribers get high quality services from mobile operators and service providers at affordable rates.

Conditions (pre- or post-)
n/a

Performance needs
Fast transactions and confirmations from DLT system are necessary. Currently it takes 3-5 seconds of delay for transaction' confirmation and in average about 10 000 transactions per second, which is enough for all expected technical loads.

Legal considerations
n/a

Risks

Special Requirements
<ul style="list-style-type: none">- It is necessary for Home Mobile operator to produce and distribute Multi-Account SIM-cards or eSIMs among its subscribers;- It is necessary for Home Mobile operator to have OTA (over-the-air) platform to upload mobile profiles.

External References and Miscellaneous
https://wiki.blockchaintele.com/index.php/Main_Page https://wiki.blockchaintele.com/index.php/Use_cases#Global_coverage_with_local_rates_for_subscribers

Other Notes
Open questions: <ul style="list-style-type: none">• Settlement in SDRt is a subject of further study and implementation.