

## Paper: Implementation of the One Africa Network initiative

### 1) Background

The Smart Africa Board has initiated a program of policies and technological solutions whereby African exchange-traffic will remain within Africa, and whereby this traffic will be exchanged among Smart Africa countries at lowest cost, and with high degrees of redundancy.

### 2) Challenges

In promulgating policies that promote low-cost, high-quality communications, Smart Africa faces a number of challenges:

- **Traffic volume discrepancies:** The application of the OAN rules may result in excessive disputes among the operators over the exchanges of traffic.
- **Extraterritorial Bypassing:** As OAN brings down the regional traffic rates among member countries, fraudsters may use SIMBoxes from any OAN country with low fraud control to terminate Rest-of-the-World traffic to another member state, making it more difficult for the authorities to track, dismantle the sites, identify and prosecute the fraudsters.
- **Roaming Bypassing:** As OAN will decrease the regional roaming rates among member countries; fraudsters may use SIM cards bought from other OAN countries within local SIMBOXEs to terminate bypassing calls via the roaming SIM cards.
- **Roaming Abuse:** The fact that the regional roaming rates in OAN are set to national rates level will entice regional diaspora population to keep using SIM cards from their home countries, which may not be beneficial to local operators who would make more revenues if this diaspora population were to use local SIM cards. As a result, roaming usage tracking will have to be put in place in order to ensure no roamer can keep talking at low cost after reaching the roaming traffic cap within a month.
- **Refiling:** The low termination rates applied on the regional traffic amongst operators of OAN will entice wholesale carriers to spoof OAN CLIs when terminating rest-of-the-world traffic to operators of OAN countries.
- **Traffic rates discrepancies:** The application of the OAN rules will result in excessive customer complaints or invoice disputes among the operators and the customers.

Smart Africa, through its One Africa Network Service Exchange and Clearinghouse Platform seeks to implement policies, rules, and technological solutions to address the risks above, and mitigate these.

### 3) Strategic advantages

The Service Exchange and Clearinghouse Platform brings the following advantages to Smart Africa member countries, regulators, and Governments:

- **Accountability and transparency:** Increase of transparency among and accountability of the telecom operators.
- **Accurate, efficient settlements:** compensation for the OAN voice and SMS traffic, as well as cross-border electronic transactions
- **Digital Economy:** A leap towards greater integration of the African continent – especially supporting free movement of people, boosting trade & development
- **Security enhancement through digital border controls:** Special and proven technological and procedural means to protect the OAN against Refilling and "Bypass" fraud; keeping the African traffic local and reducing security and tapping issues from third parties.
- **Quality of service:** improved through centrally deployed monitoring technologies, and communicated key performance indicators
- **Certification, authentication, and audit:** means to reinforce KYC and digital identity for all OAN final users, and the certification/authentication of the OAN voice and SMS traffic, and cross-border electronic transactions
- **Equitable value:** the establishment of a roaming zone with harmonized rates result in more affordable voice & data roaming rates and cross border mobile payments supporting millions of Africans within Smart Africa Member States, as well as an increase of Intra-African traffic as a result of affordability
- **Data calling revenue management:** Economies of scale and consolidated African position reinforces strength to negotiate with OTT players

In this context, the Smart Africa Board communicates its intentions to its member states and sets out below its framework of initiatives.

### 4) OAN Service Exchange and Clearinghouse Platform

**WHEREAS**, Smart Africa is an alliance comprising African governments, international development organizations and private companies who share the same vision of transforming Africa into a single digital market;

**NOTING** that the Smart Africa Board has identified the One Africa Network (OAN) as a strategic quick-win initiative with objective to establish a free roaming zone, boost trade and economic growth and support free movement of people across the OAN zone;

**RECOGNIZING** that the OAN offers the possibility to establish a cost reflective provision of Voice, SMS and data services, which will facilitate doing business and fast-tracking the integration agenda of the African continent;

**WHEREAS**, the Smart Africa Board has decided that the OAN is made effective in all existing Smart Africa Member States by 31st March 2017 and further requested that future Member States joining the Smart Africa Alliance implement the OAN not later than 6 months after joining the Smart Africa Alliance;

**ACKNOWLEDGING** the ongoing progress realized by several Smart Africa (SA) Member States towards joining the OAN initiative;

**WHEREAS**, the Council of African Regulators has requested that the Smart Africa Secretariat implement the Roaming hub and clearinghouse for the OAN not later than 31st December 2017;

1. The SA Secretariat is implementing a technological infrastructure and a set of rules that are intended to make the exchange of services within One Africa Network (OAN) possible at reasonable costs and under appropriate conditions.
2. The objective of this “**OAN Service Exchange and Clearinghouse Platform**” (OAN platform) is to allow the African States who are engaged in this OAN initiative to share a common infrastructure and to exchange “OAN traffic flows” and all eligible ICT services, in the unified roaming zone, as stipulated by the SA directives for the OAN, while mitigating the risk of abuse, of Refilling and of bypass frauds.
3. All Operators of the different countries involved in the OAN initiative shall use this common and highly secure clearinghouse platform for proper service exchanges, accountability of the OAN traffic, roaming management and integrated fraud control.
4. The “**OAN platform**”, which is exclusively dedicated to OAN voice traffic and service flows, will provide ecosystem players with:
  - *Conciliation, compensation and certification of the OAN voice and SMS traffic*
  - *Special and proven technological and procedural means to protect the OAN against Refilling and "Bypass" fraud*

- *Conciliation, compensation and certification of cross-border electronic transactions*
  - *Means to reinforce KYC and digital identity for all OAN final users*
  - *Reduction of the national security issues associated with new roaming rules*
  - *A network dedicated to OAN-only traffic*
  - *Roaming monitoring*
5. Each operator must be connected to the “**OAN platform**” module via a “Secure Terminal” to be provided by SA Secretariat. Furthermore, the platform will provide SA Secretariat and each National Regulator involved in the OAN, with a dashboard enabling them to monitor voice traffic, data traffic and any future exchange of electronic services within the OAN.

6. This “**OAN Service Exchange and Clearinghouse Platform**” will comprise:

a. OAN Clearinghouse

The “**OAN Clearinghouse**” serves as a central settlement node for voice traffic, SMS flows and all types of innovative services exchanged between countries inside the OAN zone. This clearinghouse consists of a set of applications and rules integrated into the platform and dedicated to OAN-only traffic and service exchange, netting and compensation between telecom operators of all SA members, for all transactions concerned by OAN directives. This set of applications and procedures will provide the regulatory body of each member country and the SA for OAN with transparency and visibility over the OAN traffic and services.

b. Fraud Management System

A client module of the “**Fraud Management System**” will be deployed in the premises of the telecom regulators of each OAN member state to allow efficient detection of the different fraud risks relating to the OAN traffic.

The antifraud components of the “**Fraud Management System**” work as follows:

- *Smart route/rate tracing for the pre-selection of suspicious routes and providers*
- *Detection centers generate thousands of test calls that are geared toward those suspected suppliers*
- *Automated fraud detection calls for the identification of fraudulent lines*
- *Automated capture of data on incoming calls and generation of reports on fraudulent lines*

- *Automated transmission of the list of fraudulent numbers to OAN telecom operators, thus allowing the latter to quickly disconnect these numbers*

c. On-demand Geo-localization of SIMboxes

The “**OAN Service Exchange and Clearinghouse Platform**” is equipped with very precise geographical location equipment. This geo-localization service will be offered on-demand.

d. Roaming Monitoring Module

The “**OAN Service Exchange And Clearinghouse Platform**” includes a non-intrusive “**Roaming Monitoring Module**” (RMM). This module collects traffic data and manages high usage alerts or abnormal behavior of roaming subscribers within the OAN region. The RMM enables to monitor the use of the services by the roamers in any given OAN country, as well as the duration of their stay on the host networks.

e. OAN Dedicated Network

In order to facilitate the control of the OAN traffic by the telecom Regulators and ensure that disputes among operators are properly arbitrated, the “**OAN Dedicated Network**” allows the OAN-only traffic for each country to be routed via regional SIP Gateway Networks. The “**OAN Dedicated Network**” is composed of three “**Regional SIP Nodes**”: one for East Africa sub-region (in Rwanda), one for West Africa sub-region (to be determined) and one for Central Africa sub-region (in Gabon).

Each node will primarily be responsible for carrying OAN-only traffic for a particular sub-region. Each one of the three “**Regional SIP Nodes**” is redundant and can handle traffic from operators of the other OAN sub-regions when necessary. The three “**Regional SIP Nodes**” are interconnected by redundant transmission links. Together, they create an efficient traffic and service management tool within the OAN for the Regulators, the Smart Africa Alliance and the OAN Board.

f. The Rate and Invoicing Verification System

The “Rate and Invoicing **Verification System**” helps regulatory authorities fulfill their mandate to reduce instances of incorrect pricing on the part of the telecom operators. It makes it possible to verify and confirm that the rates the operators offer to their subscribers in connection with the voice, SMS and data traffic are in line with the OAN rates.

7. To comply with the OAN rules and facilitate the implementation of the OAN platform, the Special Requirements below must be fulfilled by each operator and/or each regulator inside the OAN:
- a) Each Operator will be charged a fee for the usage of the common infrastructure. This fee will be determined and approved by the “OAN Clearinghouse Monitoring Committee” and will be used to pay and operate the platform;
  - b) Each National Telecom Regulator involved in OAN initiative should adopt legal and regulatory framework related to the implementation of the “OAN PLATFORM” and passes it into a regulatory decision in its country.
  - c) National Telecom Regulators involved in OAN initiative should urge the local operators of their respective country to register as members of the **“OAN Clearinghouse”** within 30 days of the adoption of this resolution.
  - d) Any operator wishing to benefit from the OAN rates through the exchange of traffic and services with other OAN member operators must integrate the **“OAN Clearinghouse”** and will receive from SA a Secure Terminal with its assigned digital certificate, to make traffic and rate declarations and to exchange Transaction Data Records (TDRs) with other OAN operators.
  - e) Any operator who wants to exchange OAN traffic with another operator from another member country must route this traffic through the OAN’s dedicated Regional SIP Gateways.
  - f) Every Regulatory Authority inside the OAN must accept a “Secure Terminal” with its assigned digital certificate to monitor the OAN traffic flows in its country.
  - g) All the regulators of OAN-countries must accept the client module “Fraud Trace” for test-calls. This module is part of the **“Fraud Management System”** that will be delivered to them by SA. It is be the responsibility of the regulators to replace the SIM cards and top them up when necessary. This is their contribution to the protection of their national networks against fraud related to OAN directives.
  - h) The **“OAN Clearinghouse Monitoring Committee”** is created for the operational phase of the infrastructure. This is a multi-stakeholder commission comprising two (2) representatives of the “Council of African

Regulators” and three (3) representatives of SA. This advisory body ensures that the Clearinghouse operations are carried out in a transparent way.

- i) The “**OAN Antifraud Commission**” is created to handle all the antifraud activities inside the OAN space, as well as the activities related to the application of OAN rules and directives. This is a multi-stakeholder commission comprising: two (2) representatives of each national telecom Regulator involved in OAN, one (1) representative of the “**OAN Clearinghouse Monitoring Commission**” and two (2) representatives of the “**OAN Clearing Operator**”. This commission shall make the relevant decisions and take action to fight against fraud and to coordinate the interventions for the geographic localization of clandestine sites involved in refilling or Bypass fraud.
- j) The “**Council of African Regulators**” must appoint its representatives from within the “**OAN Antifraud Commission**” and “**OAN Clearinghouse Monitoring Committee**”, within 30 days of the adoption of this resolution.
- k) Each National Regulator involved OAN initiative must appoint its two (2) representatives from within the “**OAN Antifraud Commission**” within 30 days of the adoption of this resolution.