

Request for Proposals to provide a Number Portability Administration Service for Kosovo

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1. Introduction

The Regulatory Authority of Electronic and Postal Communications (**ARKEP**) is the national regulatory authority in the field of electronic communications and postal services which performs the tasks defined by this Act and by the other applicable legislation and applies the policy and national strategies of electronic communication sector, defined by the Ministry.

You are hereby invited to participate in the Kosovo Number Portability Clearinghouse (termed NP Administration Service) procurement programme by submitting a detailed technical and commercial proposal in compliance to the requirements detailed in this Request for Proposal document.

An authorization will be issued on the mobile and fixed operators by ARKEP to provide Local (Fixed and Mobile) Number Portability (LNP) services to the consumers in Kosovo.

When considering number portability implementation there are two distinct aspects: administration and call routing. Administration is the processes associated with accepting and implementing customer orders to port their numbers. Call routing is the process of correctly connecting a call to the intended recipient. ARKEP is looking for a viable, efficient and cost-effective solution for an order handling system which could be fully automated, semi-automated or manual, but should include a centralised reference database. The database should be used to (at least) record some details against all ported fixed and mobile numbers. That data will be used by individual operators for call routing purposes.

ARKEP plans to require operators to implement fully automated order handling systems for the porting of Mobile numbers, but ARKEP may allow operators to implement automated, semi-automated or manual order handling systems/ processes for the porting of Fixed numbers.

The initial requirement for Local Number Portability is to facilitate the Porting of Mobile (mobile to mobile) and Fixed (fixed to fixed) telecommunications services¹. In addition, there are other developments going on in the telecommunications arena, so any solution should be future proofed in this respect. These aspects should be borne in mind when developing the response.

ARKEP invites responses from the selected Number Portability System/ Clearinghouse Suppliers (Vendor) to provide detailed technical and commercial proposals in compliance to the specified RFP requirements to participate in the competitive tender procurement process which will lead (ultimately) to the selection of a preferred bidder. Such a bidder will then

¹ For the avoidance of doubt porting of fixed services may include the porting of non-geographic and other similar number types.

provide a solution to the Kosovo fixed and mobile operators which will enable them to provide efficient NP services to fixed and mobile subscribers in Kosovo. This RFP tender document is in compliance with ARKEP Regulation nr.58 for Number Portability and provides detailed technical, operational and commercial procurement requirements information to enable Vendors to prepare and submit detailed technical and commercial proposals with the prescribed format and content for the provision of such a NP Administration Service, to support and facilitate number portability for fixed, mobile and associated services, which will be used by operators of electronic communications services, in Kosovo to effect:

1. The process of 'Porting' of mobile and fixed numbers for Operators authorized in Kosovo by ARKEP who provide electronic communications services that are subject to a number portability requirement ("Authorized operators/ stakeholders"); and
2. The provision of 'Destination Information' from a reference database of all ported numbers so that individual Authorized operators/ stakeholders can use this information in their own call-by-call routing databases for All Call Query routing.

The service will be provided to all mobile and fixed operators in Kosovo.

The contracting arrangement will be through a multi-party contract between the selected Service Provider and the Authorized operators/ stakeholders to cover the development, implementation and provision of the NP Administration Service. ARKEP will issue an authorization to the Service provider for the provision of Number Portability services in the Republic of Kosovo.

It is intended that by **T0+15 months**, mobile and fixed telephone service users in Kosovo will be able to keep their mobile and fixed numbers when they change service provider.

Respondents are advised that ARKEP will consider the future capabilities of the proposed NP Administration Service solutions to provide Porting in future market sectors as a key assessment criterion and should ensure that their proposals are structured around these requirements. Currently, ARKEP does not intend to allow hybrid porting across different service types (i.e., fixed to mobile and mobile to fixed) but this situation may be reviewed in the future.

2. Kosovo & Telecommunications Operations

2.1 Overview

Republic of Kosovo is a state in Southeast Europe. It lies at the centre of the Balkans, occupying an area of 10,887 km² (4,203 sq. mi), with a population of about 1.8 million.

Kosovo has large reserves of lead, zinc, silver, nickel, cobalt, copper, iron and bauxite. Agriculture and tourism are key sectors of the Kosovo economy. GDP for Kosovo was \$13,017 per capita in 2020.

2.2. Regulatory Overview

Telecommunication market in Kosovo was liberalised Pursuant to sections 5) of the Telecommunications Act 2002/7.

The Regulatory Authority of Electronic and Postal Communications (**ARKEP**) is the national regulatory authority in the field of electronic communications and postal services which performs the tasks defined by this Act and by the other applicable legislation and applies the policy and national strategies of electronic communication sector, defined by the Ministry.

The Authority is a public entity, independent, budgetary, legal entity with public authority, which exercises its activity in compliance with legislation in force. The Authority in its work and decision-making within its competencies is independent.

ARKEP officially started operating in January 2004.

During its young development ARKEP has been through some important milestones that represent important steps towards a free, competitive market which promotes the development of the information society in Kosovo.

All network operators/service providers that are authorized by ARKEP to provide mobile and/or fixed number services are required to provide the Number Portability Service to their customers. As far as the Service resellers are concerned, ARKEP is of the opinion that the number portability requirements on the authorized operators are 'passed through' to resellers.

ARKEP believes that introducing Number Portability services in the Republic of Kosovo will directly benefit consumers and will drive competition. ARKEP confirms that the operators under its direction will be required to develop and deliver the optimum Number Portability solution for consumers in Kosovo.

2.3 The Kosovo Telecoms Markets

There are currently approximately 1.8 million mobile subscribers and 73,000 fixed telephony subscribers in the Republic of Kosovo. Fixed services are delivered via different network approaches including conventional copper based, fibre to the premises, coaxial cable and fixed wireless infrastructure. Mobile service is delivered using 2G, 3G, 4G and 5G networks.

2.3 Competition

The following operators/service providers are providing electronic communications services in Kosovo, which will be subject to a number portability requirement at the inception of number portability in Kosovo.

Kosovo Telecom was initially established in 1959. The company transformed into a joint stock company in 2005 and it offers fixed line, mobile communications, internet and cable TV services. Vala is the incumbent's mobile unit, which has been in operation since 2000.

IPKO Telecommunications – the second mobile operator in Kosovo. IPKO is a subsidiary of Telekom Slovenije (Telekom Slovenia) and provides mobile and fixed telephony, internet services and cable TV. IPKO launched fixed services and mobile services in December 2007.

There is also one mobile virtual-network operator (MVNO) currently offering mobile services:

D3 mobile (Dukagjini Telecommunications) – D3 mobile launched in 2008 after being authorised by ARKEP. D3 mobile has a commercial agreement with IPKO to resell their services. D3 mobile specialises in M2M services via GPRS, and also offers data-only mobile broadband SIM packages and prepay mobile services.

KjutesaNet SH.P.K. – initially provided internet and cable TV services while from 2014 it also started to offer fixed telephony services;

MTS doo, a subsidiary of Telekom Srbija (Telekom Serbia, headquarters based in Mitrovica) is authorized to provide fixed telephony and internet services starting from 2016.

3. Number Portability for Kosovo

3.1 The Requirements for the NP Administration Service

The Service Provider will provide the NP Administration Service which will be a managed service to administer number portability in Kosovo. This functionality will encompass the need to maintain relevant details regarding fixed and mobile subscriber number ranges together with the full history of any Porting activity for any particular number and for providing specific statistical information as required by ARKEP;

This managed solution may be either:

- located within Kosovo being provided and managed from the Service Provider's premises or the premises of the Service Provider's nominated local partner (which partner must be approved by ARKEP); or
- Provided by the Service Provider using a hosted solution securely operated from a remote location outside of Kosovo. Please note, where the Service Provider proposes to offer a hosted solution operated from a remote location outside of Kosovo, the Service Provider will be required to demonstrate that the protection of Kosovo number portability data will be compatible with the data protection/ privacy legislation within Kosovo. The protection of Kosovo number portability data will be a parameter within the assessment framework used by ARKEP and the NPWG stakeholders.

Development and implementation of the service will be covered by a contractual arrangement between the Service Provider and the authorized operators/ stakeholders, while the NP Administration Service will be provided to the authorized operators/ stakeholders under the terms of Authorizaton issued by ARKEP to the selected NP Service Provider.

The hardware and software that provides the NP Administration Service will remain in the domain of the Service Provider. The Service Provider will place the Software source code and supporting material into escrow within thirty (30) days of Final Acceptance in accordance with the provisions of a separate escrow agreement, which will incorporate all the usual terms to be found in such agreements (including but not limited to terms on (i) the deposit of the source code and supporting material, (ii) the source code and supporting material being updated and (iii) the release of the source code and supporting material to ARKEP on the Service Provider ceasing to trade in the normal course, being the subject of an insolvency event or the Service Provider by its fault causing or allowing the software to become obsolete.)

In the event that the authorized operator/ stakeholder requires additional hardware or software in order to provide number portability functionality, such requirement shall be contracted for separately between the Service Provider or its other supplier and the authorized operator/ stakeholder and will not form part of the NP Administration Service.

The NP Administration Service and the Service Provider will have no proprietary rights to the porting related data collected, managed and stored by the NP Administration Service. The rights to the porting related data collected, managed and stored by the NP Administration Service will be defined in the contract between the Service Provider and the nominated contracting parties. The contract between the Service Provider and the nominated contracting parties should stipulate that the Service Provider may only provide access to porting related data to third parties with the express prior permission of ARKEP on the basis of recommendations made by the nominated contracting parties/ NPWG. Third party access to Kosovo porting related data held by the NP Administration Service will be subject to commercial arrangements either defined in the common licencing framework issued by

ARKEP and/ or the contracting framework established with the authorized operators/ stakeholders.

Authorized operators/ stakeholders may use LNP ported related data only for their own All Call Query (ACQ) calling and internal BSS/OSS purposes and should not be provided to any third party, whatsoever. Third parties can obtain Kosovo porting related data only via NP Administration Service with ARKEP approval.

3.2 Future developments

This RFP addresses the provision of NP Administration Service for fixed, mobile and other services for which number portability may be implemented, though fixed and mobile NP services are to be implemented at inception. Porting of other service types may be implemented in the future. The solution provided should therefore have supporting features for mobile and other services such as Voice over Internet Protocol (VoIP).

Respondents are required to indicate in their proposals whether and, if so, how the proposed solution could be expanded to include Porting between fixed (including non-geographic and similar numbers) and mobile numbers; and other services such as VoIP and Electronic Number Mapping (ENUM).

3.3 Kosovo and Authorization Structure

ARKEP, having regard to the recommendations of the NPWG, will be responsible for the regulatory and contractual arrangements for the provision of the NP Administration Service. It is expected that the arrangements will take the form of:

- A contract between the authorized operators/ stakeholders and the selected Service Provider covering the development and implementation of the NP Administration Service. The contractual arrangements between the Service Provider and authorized operators/ stakeholders will also cover the detailed charging and service level arrangements relating to the use by authorized operators/ stakeholders of the NP Administration Service; and,
- In accordance to ARKEP's General Authorisation regime, ARKEP will issue an authorization to the selected Service provider for the provision of Number Portability Administration Service to the authorized operators/stakeholders and those authorized operators/ stakeholders will be mandated their own authorization arrangements issued by ARKEP to provide number portability using that NP Administration Service or an alternative arrangement agreed by ARKEP and associated stakeholders prior to the negotiation process with the selected Service Provider.

The NP Service Provider will charge and invoice the authorized operators/ stakeholders directly for the Porting services provided based on charging/ cost recovery arrangements and

contracting framework to be agreed by ARKEP subject to consultation with the authorized operators/ stakeholders, and the Service Provider. ARKEP requests, however, that a monthly charging arrangement be provided in the respondent's proposal, to enable easier comparison and assessment of proposals received.

ARKEP would also welcome innovative commercial/ contracting proposals from NP Service Providers in this respect.

3.4 Data Protection

The Service Provider will be required to demonstrate that the protection of Kosovo number portability data will be compatible with the data protection/ privacy legislation within Kosovo.

The protection of Kosovo number portability data will be an essential parameter within the assessment framework used by ARKEP and the NPWG stakeholders.

3.5 Selection of Possible Service Providers

ARKEP is specifically interested in considering and progressing proposals from service providers who have been involved with the successful development and implementation of NP solutions in other similar jurisdictions. The selection of the Service Provider will be agreed by ARKEP having regard to recommendations made by the Number Portability Working Group (NPWG).

3.6 Number Portability Working Group

A Number Portability Working Group (NPWG) is appointed by ARKEP and will under ARKEP's direction, develop, implement and launch the number portability service, including evaluation of the proposals submitted by bidders to this RFP. The NPWG is composed of representatives from ARKEP and major authorized operators/ stakeholders determined by ARKEP, - The NPWG is chaired by a senior employee of ARKEP.

Further specialist work streams may be established advising and reporting to the NPWG to support the implementation of NP in Kosovo. The establishment of further specialist work streams will be ratified by ARKEP following recommendations received from the NPWG.

3.7 Establishing and operating a business in Kosovo

If a non-resident person in the Republic of Kosovo intends to do business or carry out projects or programs in the Republic of Kosovo, he is obliged to establish a Permanent Unit in Kosovo or appoint a fiscal representative before starting any economic activity in the Republic of Kosovo.

The non-resident person who is awarded a contract in the Republic of Kosovo is obliged to comply with the laws and by-laws such as:

Law No. 03/L-222 FOR TAX ADMINISTRATION AND PROCEDURES

Administrative Instruction No. 15/2010, Article 10

Law No. 05/L -029 ON CORPORATE INCOME TAX

ADMINISTRATIVE INSTRUCTION MF-No. 02/2016

Law no. 05/L-037 on VAT

For more information and clarifications, non-residents should contact the Tax Administration of Kosovo (<https://www.atk-ks.org/en/>).

4. The Specific Service Requirements and Submission Requirements

4.1 The Service Required

ARKEP will consider either a service which is provided from or located in Kosovo or is provided remotely and run with processes and software developed for other jurisdictions. In the latter case, the remote location for hosting the NPC should be included in the list countries with an adequate level of personal data protection, which is approved by the Kosovo Agency for Information and Privacy:

<https://aip.rks-gov.net/download/vendim-lista-e-vendeve-me-nivel-te-duhur-te-mbrojtjes-se-te-dhenave-personale/>

The NP Administration Service shall be capable of providing, at a minimum, the following functionality:

- i. The relaying of messages between Donor Operator and Recipient Operator and the maintaining of state information for each individual and bulk Porting;
- ii. Management of the Porting processes for fixed and mobile services, provided to retail and corporate/ business consumers, to meet the target times;
- iii. Validation of the Porting request by the subscriber by means of IVR, SMS, email or other code mechanisms;
- iv. Communication with the subscriber by email or SMS (at a minimum) to advise the subscriber of the status of their Porting request;
- v. The broadcasting to all Licensed operators/ stakeholders of information on the identity of the Recipient Operator who is serving a number after it has been ported;
- vi. The collection of logs on all Porting activities;
- vii. The collection of statistics on Porting;
- viii. The storage of information on the history of each Porting but excluding any personal subscriber data;
- ix. The maintenance of a reference database of all ported numbers and the provision of downloads of this information to ARKEP, any authorized operator/ stakeholder, especially new entrants;
- x. Management of ancillary functions, which include but are not limited to: Cooling Off, Emergency Repatriation, Return to Number Range Holder and Porting Database Synchronisation; and
- xi. Provision of access to porting data to third parties as notified and approved by ARKEP.

Each authorized operator/ stakeholder will use data from the NP Administration Service to populate its own call-by-call routing databases for All Call Query (ACQ) routing.

The NP Administration Service may be operated from within Kosovo or hosted/ provided remotely, but particular importance will be placed upon evidence of the security and reliability of the proposed service, and the Service Provider should include information on performance of similar services in, or to, other countries. The Service Provider will be required to demonstrate where the NP Administration Service is hosted/ provided remotely, that the protection of ARKEP number portability data must be compatible with the data protection/ privacy legislation within Kosovo. The protection of ARKEP number portability data will be a parameter within the assessment framework used by ARKEP and the NPWG stakeholders.

Figure 1, shows the required separation of access functionality and delivery of 'Destination Information', from the actual core operation of the NP Administration Service.

The NP Administration Service should be provided in a manner which will enable secure read access to Porting data by Law Enforcement Agencies/ Emergency Services operating in Kosovo, subject to compliance with applicable legal requirements, and where appropriate, other stakeholders such as value-added service operators etc, as notified and authorised by ARKEP.

The Service Provider must always ensure full compliance with applicable data protection laws and other legal requirements in Kosovo in force from time to time.

Where the Service Provider uses any sub-contractors to provide this NP Administration Service then the Service Provider must demonstrate that the sub-contractors comply with all applicable laws of Kosovo in force from time to time. Notwithstanding and without prejudice to the foregoing, the Service Provider shall be liable for any breach of any laws of Kosovo and shall be required under the contractual or authorization arrangement to indemnify ARKEP and the authorized operators/ stakeholders in respect of any such breach.

Kosovo NP Administration Service run by Service Provider

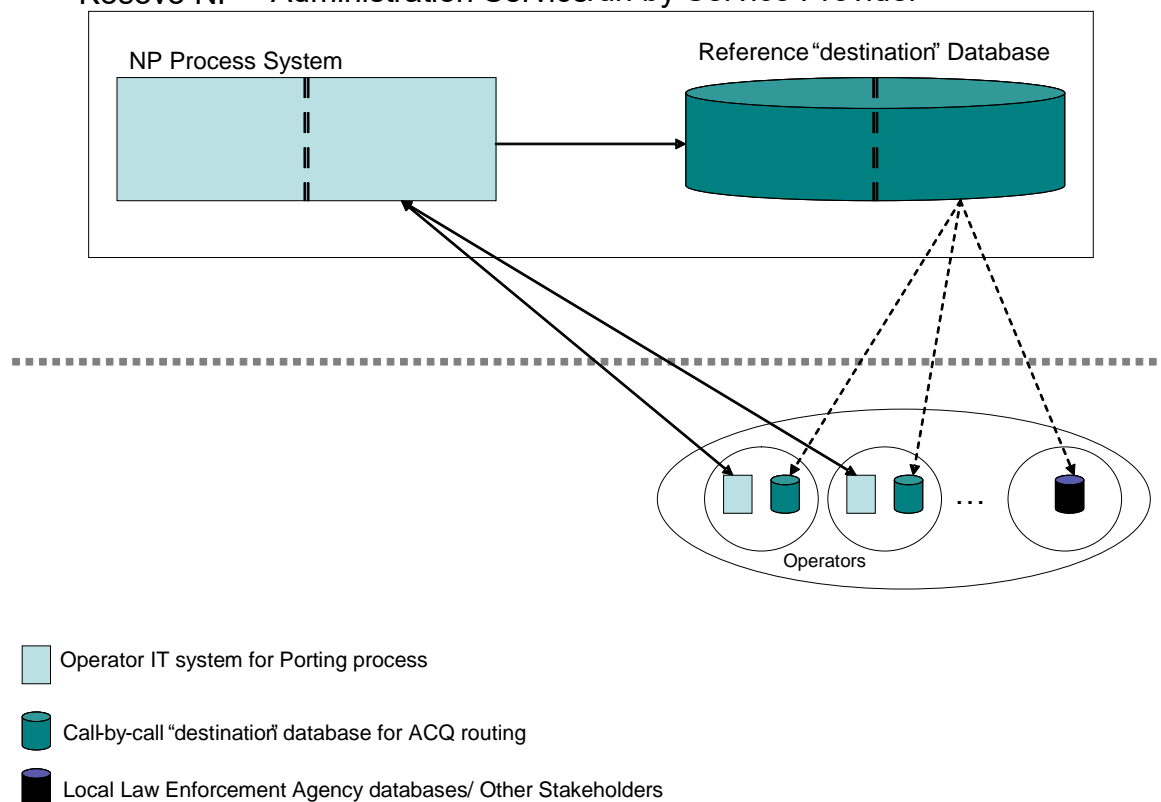


Figure 1: NP Administration Service Schematic

The NP Administration Service must support the generic interfacing requirements specified in this RFP. It is expected that ARKEP will provide a draft of detailed specifications for the Porting process.

It is assumed for this RFP that each Authorized operator/ stakeholder has at least one input connection to the Reference Database.

4.2 Licensing and Service Levels

The intention is for ARKEP to issue unified authorizations for a fixed period for Kosovo. The initial term/ duration of each unified Authorization will be aligned to the corresponding initial term and renewal conditions stipulated in the multi-party contract between the Service Provider and the nominated parties. ARKEP will schedule and conduct review meetings together with the Service Provider and the authorized operators/ stakeholders.

The authorization for the NP Administration Service will contain details of the terms under which Service Level Agreements (SLA) will be managed and which of ARKEP and authorized operator/ stakeholder representatives will take part in the Review Meetings. SLAs will be measured monthly. Penalties for failing to meet the terms of the SLA will apply.

The efficient and consistent operation of the NP Administration Service will be managed through an appropriate SLA framework based on effective financial penalties for breach of defined contractual performance standards or SLAs by the Service Provider. Additionally, where the Service Provider has consistently or seriously breached agreed defined contractual performance standards or SLAs, ARKEP reserves the right to revoke the authorization for breach of any condition contained therein or should the levels of performance specified in the SLA not be met or recovered.

Although other pricing and charging arrangements will be considered by ARKEP, the proposal shall, for the purpose of comparison of proposals submitted, specify the price for a 5-year initial period, with reviews at 3-month intervals for the first year and at mutually agreed times between ARKEP, the authorized operators/ stakeholders and the Service Provider thereafter.

ARKEP reserves the right to use a third party to monitor the performance level of the Service Provider.

The table 1 below is an indication of the minimum service level requirements that ARKEP is seeking from the Service Provider. The Service Provider’s response should include financial service credits or penalties for failing to meet an agreed service level.

Service Area	Specification	Minimum Requirement
Availability	Twenty-four (24) hours daily	99.5% per Month
Response time to requests	Interactive - real time	Refer to process documentation
Unplanned Outages	Outages in excess of 30 mins	Less than 2 per month
Planned Outages	Outages in excess of 120 mins outside of the agreed maintenance window	None per month
Reporting	Availability of Administration System	Weekly
Reporting	% of subscribers ported in/out against 2-day target	Daily
Operational Desk opening hours	0800 to 1800 hours – CE(S)T Time zone	100% per Month
Response time after problem is reported	Within 30 minutes	100% per Month
Progress update	Hourly	100%
Resolution Time	To be agreed with NP Service Provider.	

Service Area	Specification	Minimum Requirement
Data back-up	Daily	100% per Month
Maintenance window	To be agreed with NP Service Provider.	100% per Month
Notification of planned work	48 hours	100% per Month
Notification of emergency work	To be agreed with NP Service Provider.	

Table 1: Proposed NP Administration Service – SLA Framework

The Respondent should give details of ready developed ‘best practice’ Porting rules. The proposal should describe how the Service Provider will support ARKEP and authorized operators/ stakeholders in the testing of their systems and processes and should outline the tests that the respondent would expect to undertake with each of the authorized operators/ stakeholders individually and jointly.

If the proposal includes the need for each licensed operator/ stakeholder to run the Respondent’s proprietary NP software within its own IT operations, then this section must also cover all the necessary specifications regarding software and hardware that would be required. ARKEP preference is for solutions which are based on open-source standards and protocols which are not dependent on authorized operators/ stakeholders procuring proprietary hardware or software.

In addition to the regular operation of the NP Administration Service, the respondent must include a section on how they would implement and validate a Disaster Recovery process.

The Respondent may include another company as its partner. However, the Respondent shall be the “Service Provider” for the purpose of the engagement and shall be solely liable for the performance of all services agreed to.

4.3 Customisation – NP Administration Service

The software used to provide the service should be ‘parameter driven’ (i.e., the software should allow changes to be made in timings, response reasons and other parameters with minimal additional cost).

ARKEP is proposing that fixed and mobile numbers can only be ported within Kosovo. The NP Service should be configured to separate out and manage the Numbering plan, authorized operators/ stakeholders and Porting transactions/ history for Kosovo as a separate entity within the central NP Administration Service. ARKEP is proposing to develop and operate, where possible, common task driven NP processes and NP service functions in Kosovo.

ARKEP may decide to operate simultaneously separate Porting processes for the Porting of specific types of services and subscribers, which may require the software to support separate processes with differing time, response reasons and stage parameters. For instance, ARKEP may decide to allow the Porting of business/ corporate services (non-personal ports) to be processed during different working hours as to the Porting of e.g. personal numbers services. Also, the Porting process and parameters for the Porting of fixed services may differ from the Porting of mobile services.

The NP Administration Service and associated software shall enable additional licensed operators/ stakeholders to be added to the Kosovo NP Service with no disruption to existing licensed operators/ stakeholders, minimal additional costs and minimal implementation timeframe.

The requirements given in this RFP are minimum specifications. The Respondent may propose additional features that the Respondent considers will be of benefit to ARKEP and the authorized operators/ stakeholders.

The Respondent may offer additional support services to the licensed operators/ stakeholders separately for assistance with interconnecting the service to their existing IT and network infrastructure. Such services shall be outside the scope of the services engaged pursuant to this RFP, however, in order to ensure transparency and non-discrimination, the scope and prices of such services must be offered on the same terms and conditions to all authorized operators/ stakeholders.

5. Interfacing with Operator IT & Network Environments

5.1 Automation

The Service Provider selected should be able to operate in both of the following modes:

- i. Manual control mode - with access being provided via a browser or client module using the appropriate protocol; and
- ii. Automatic control mode - integrated into Operator managed IT infrastructure using protocols or APIs to enable appropriate functionality to be integrated into Operator applications as and where needed.

Although manual and automatic control modes are included above, please also specify any combination of these two modes that you wish to include in your proposal.

The Respondent should specify clearly what it can deliver within the timescales outlined in this RFP.

5.2 Dimensions & Scalability

The Respondent should describe any capacity limits for its service and any changes in pricing that is dependent on the number of portings per year. The latter should be provided based on the following Porting rate bands:

- i. Up to 20,000 Portings per annum;
- ii. 20,000 to 40,000 Portings per annum;
- iii. 40,000 to 60,000 Portings per annum;
- iv. 60,000 to 80,000 Portings per annum; and
- v. Greater than 80,000 Portings per annum.

The Respondent should also provide pricing based on an annual subscription which is independent of specific Porting volumes (and therefore not subject to change based on volume increases). Please note – the Porting rate bands are designed to ensure adequate scalability having regard to possible future Porting demand for both fixed and mobile Porting services and should not be construed as a prediction or guarantee of anticipated Porting volumes.

5.3 Administration Services

In addition to the main NP functions, the following functions should be included:

- i. Adding new operators/ stakeholders and number ranges;
- ii. Helpline for operators/ stakeholders using the NP Administration Service; and
- iii. Contact point for faults with the NP Administration Service.

The Respondent should also state how it would undertake the following:

- i. Routine backup of the portability data stored;
- ii. Verification of ported numbers against operators/ stakeholders in-service numbers;
- iii. Process for updates to the software and change requests from ARKEP, where also the recommendations by the NP working group will be regarded; and
- iv. Handling of equipment and software failures.

5.4 Availability of a NP Administrative Service for test purposes

To enable each of the authorized operators/ stakeholders to prepare their own operations for NP, it will be necessary to provide them with independent access to a fully functional test environment.

This test environment should allow all of the authorized operators/ stakeholders to, independently of each other, test their interfaces and IT systems with the solution being provided by the Service Provider and to undertake all Porting operations with a "dummy" operator.

This test environment should also be available to allow the authorized operators/ stakeholders to test the inter-operator processes and the passing of messages between each combination of real operators.

It is expected that the Service Provider will also make the test environment and facilities available to ARKEP and the authorized operators/ stakeholders to support the implementation and launch of other forms of number portability in the future, for instance ENUM portability, over the air switching using e-SIM etc.

6. NP Processes

This section is intended to provide an outline of the likely processes that will be involved in number portability in Kosovo, to enable Respondents to present comparable proposals in response to this RFP. Except as specifically identified, the processes set out in this section are indicative only and are subject to change. Final processes for number portability in Kosovo will be ratified by ARKEP following NPWG recommendations. The output from this process will be provided to the successful Respondent during the course of negotiations for the detailed terms and conditions of the provision of the NP Administration Service for Kosovo.

6.1 NP Processes and Transactions

ARKEP has determined that the NP process in Kosovo will be Recipient Led and task driven. Therefore, Recipient Operator will initiate all NP procedures and the Donor Operator will provide responses.

The proposed role of the NP Administration Service is to log and enable the management and delivery of the NP transactions between the Recipient and Donor Operators, and to 'Broadcast' the results of each successful Porting. In addition, the NP Administration Service will receive and check the Call Line Identifier (CLI) and subscriber validation message (i.e., IVR transactions/ Pin codes or email/ SMS messages) from the Porting subscriber and notify the subscriber of the status and progress of their Porting request by email or SMS.

ARKEP intends to simplify the Porting process and minimise the amount of subscriber Porting data transferred in each Porting transaction. ARKEP intends that transactions in the Porting process will be message driven and no files will be exchanged between Recipient and Donor operators via the NP Administration Service.

But in case there will be future design of sending/receiving messages with user sensitive data and/or files via NP Administration Service, Service provider solution must include correct handling of encrypted messages by Recipient and Donor for user sensitive data and/or attached files.

The following process diagrams show the various steps that would be taken during a full NP process for the Porting of fixed and mobile numbers. It should be noted that the timeframes, and principles set out in the tables are indicative only and included to enable presentation by Respondents of comparable responses. Actual timeframes and processes to be implemented should be in line with ARKEP Regulation nr.58 on Number Portability and the final version of the "LNP Business Rules" document, so the successful Respondent must be prepared to adapt its system to the actual timeframes established by ARKEP. The detailed draft LNP Business Rules shall be provided by ARKEP and finalized in collaboration with NPWG and the NPC service provider.

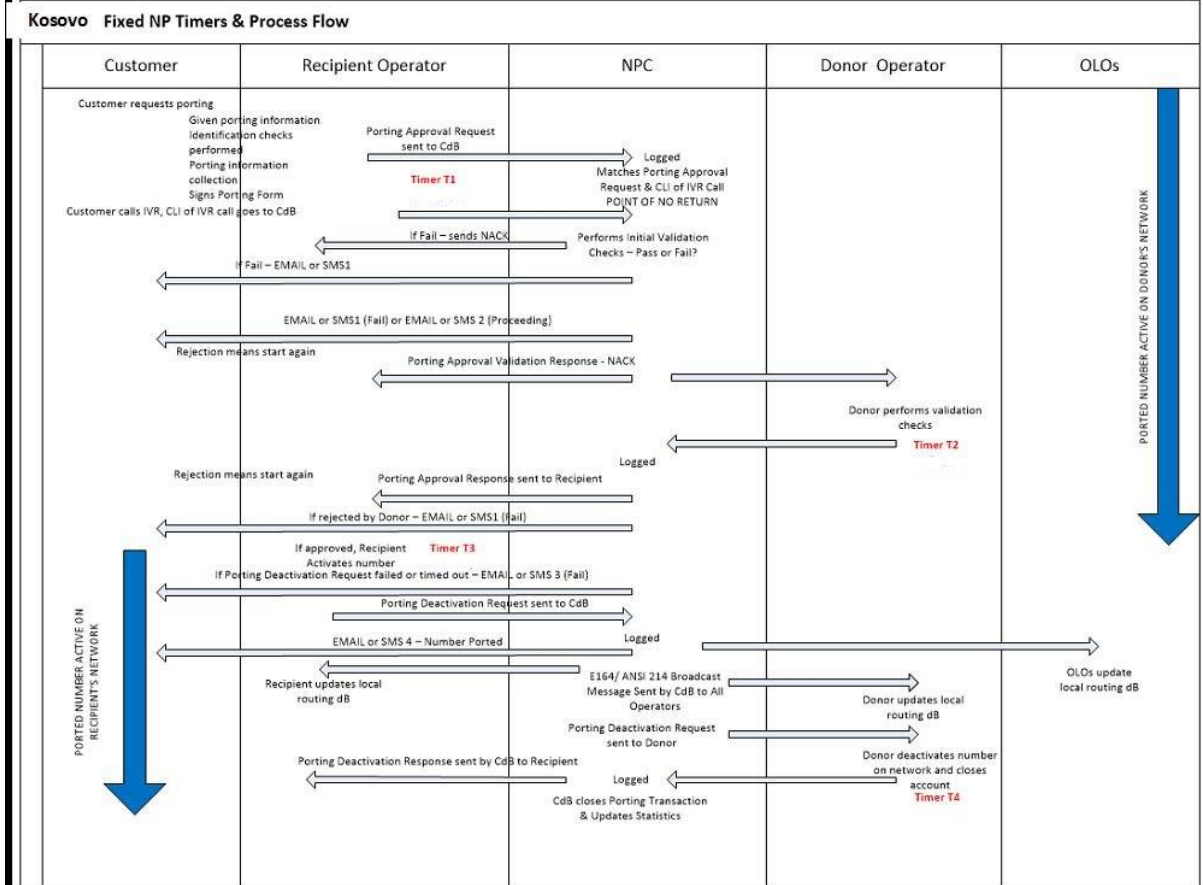


Figure 2: Proposed Kosovo Fixed NP Process Flow

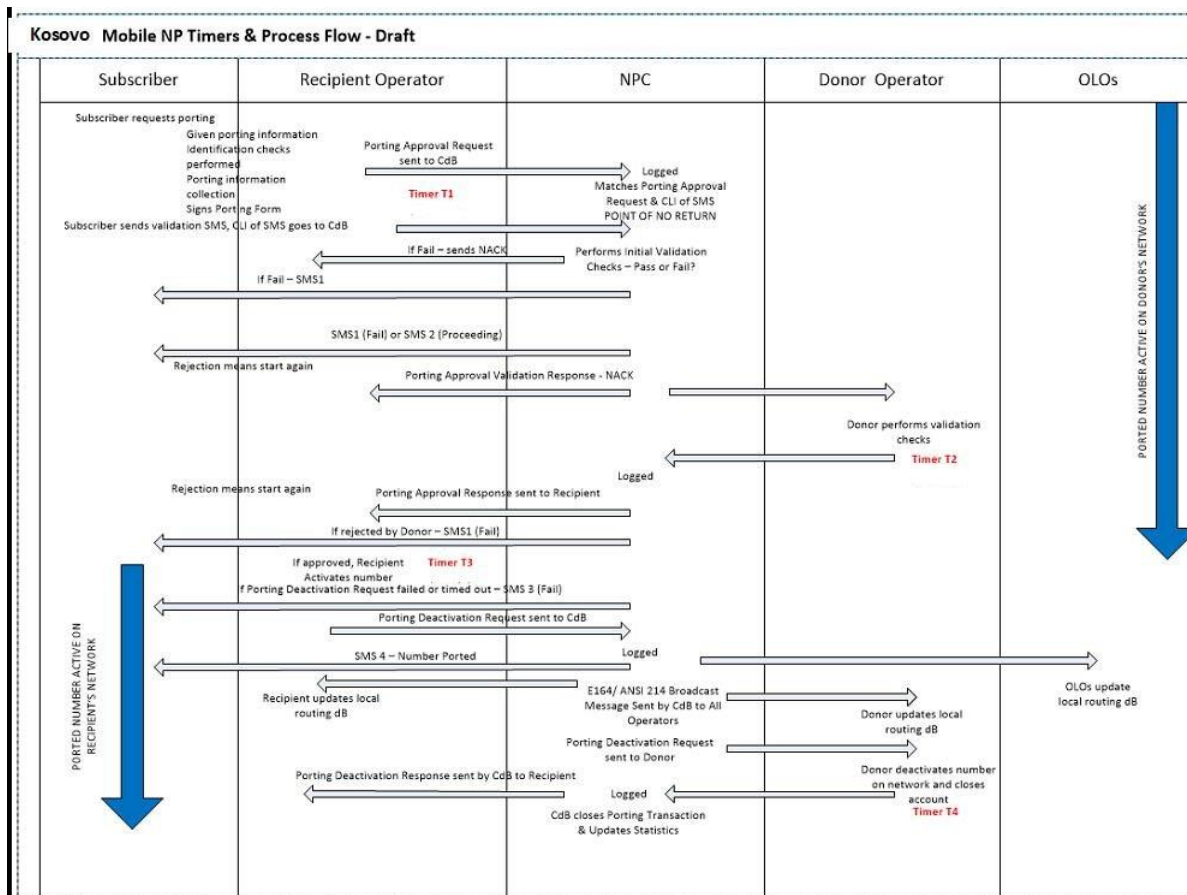


Figure 3: Proposed Kosovo Mobile NP Process Flow

A check is made between the NP Administration Service and the subscriber that will not be passed if the Recipient Operator has made an error in entering the number to be ported or the number being ported is either already subject to a Porting request or has been recently ported within a defined timescale. T1 is the period to allow the NP Administration Service to perform these checks.

The diagrams show only the main elements of the NP process. The details need to be discussed and will be specified in relation to each of the different types of account:

- Registered vs. non-registered;
- Personal vs. non-personal (e.g., corporate);
- Pre-pay vs. post-pay;
- Single line vs. multi-line; or
- Single service vs. multi-service (i.e., voice vs. voice & broadband)

This information will be given in the detailed LNP Business Rules document. The process specifications will be developed and finalised as part of the NPWG process in line with ARKEP Regulation nr.58 on Number Portability.

Once the Recipient Operator has submitted the Porting request to the NP Administration Service and this has been matched against an incoming validation mechanism (i.e., CLI/ IVR/ Pin/ Email or SMS from the subscriber), the NP Administration Service performs checks to confirm the validity of the number to be ported and whether this has been ported recently within the onward Porting time period. If the Recipient Operator has made an error in entering the number/ service type to be ported or an error in entering the correct donor operator or the number being ported is either already subject to a Porting request or has been recently ported within a timescale defined by ARKEP, then the NP Administration Service will reject the Porting request and notify the Recipient Operator via a reject code and the subscriber via email or SMS.

Where the NP Administration Service matches the Porting request with the corresponding subscriber validation message, verifies that the number is correct and has not been previously ported within the Onward Porting period, the NP Administration Service shall approve the Porting request and forwards the request to the Donor Operator for processing and approval. The NP Administration Service shall also send an email or SMS to the subscriber to confirm the Porting request is being processed.

The Donor Operator shall then verify the Porting request against fixed parameters defined by ARKEP. Where the Porting request complies with ARKEP parameters, the Donor Operator shall approve the Porting request and send approval to proceed to the Recipient Operator via the NP Administration Service. Where the Porting request fails to meet one or more of ARKEP parameters, the Donor Operator may reject the Porting request and notify the Recipient Operator of the reason for rejection by sending a specified NP rejection code.

Porting must be completed within timescales defined in Kosovo Regulation on Number Portability and LNP Business Rules. For the purpose of this RFP, the timescale should be assumed to be no more than 6 working days (fixed Porting only) and no more than 2 working days (mobile Porting only) of the NP Administration Service validating the Recipient Operator's Porting Approval Request with the subscriber's received validation message and forwarding to the Donor Operator for approval.

T2 is the time limit for the Donor Operator to respond to the Porting Approval Request from the Recipient Operator. The response may either be an "Accept" or a "Reject". Where it is a "Reject" response, the codes relating to the reasons for issuing a Reject must be included in the Response message.

Assuming the Donor Operator approves the Porting Approval Request (by sending the Porting Approval Response), T3 is the period to allow the Recipient Operator to activate the number on their network and send the Porting Deactivation Request.

The NP Administration Service then initiates a Broadcast by sending an E.164 message to all authorized operators/ stakeholders informing that the number is now activated on the Recipient Operator. The Porting is now complete.

Operators in Kosovo currently use ETSI routing and interconnection approaches which will influence the requirements and operation of the All-Call Query (ACQ) direct routing approach to be used in Kosovo to support the operation of the NP service. ARKEP will seek the recommendations from the NPWG of the most appropriate ACQ routing approach to be adopted and used in Kosovo, to support the ETSI Network Level Routing approach.

T4 is the time limit for the Donor Operator to de-activate the number and apply onward routing. During T4 the number may be active on the Recipient Operator's network and the Donor Operator's network since there is an overlap before it is deactivated on the Donor Operator.

The NP Administration Service will monitor the progress and collect statistics on the processing of Porting transactions across all parties.

In the event problems are experienced whilst a Porting request is being processed, the Authorized operators/ stakeholders involved should be able to abandon the process through the use of timing out functions and to start the Porting process from the beginning once the problems have been identified and resolved.

A number may be ported more than once and may be ported back to the original range holder. It will be necessary to specify minimum periods between each Porting, known as Onward Porting and Cooling Off periods.

6.2 Customer Validation/ Authorisation Facility

The proposed NP Administration Service will be required to match the subscriber's CLI and/ or a subscriber validation message with each Porting request to enable the Porting request to be processed.

Different validation message approaches may be used for processing fixed and mobile number porting requests.

For instance, fixed number Porting requests may be validated by:-

- Call a dedicated telephone-based Porting facility which would validate and match the CLI of the incoming call with the corresponding Porting request submitted by the Recipient operator; or
- NP Administration Service generated pin-code which is sent to the subscriber by email or SMS. The subscriber would then either: -
 - Provide the unique pin code to the recipient operator who would enter into / send to the NP Administration Service; or
 - Call a dedicated telephone-based Porting facility and confirm the unique NP Administration Service generated code by voice message or touch tone phone;

- Another subscriber validation mechanism as suggested by the Service Provider.

For instance, mobile number Porting requests may be validated by subscriber: -

- Send a SMS to a unique Porting number connected to the NP Administration Service which would then match the CLI of inbound SMS with the corresponding Porting request submitted by the Recipient operator; or
- Send a SMS to a unique Porting number indicating a unique NP Administration Service Porting reference number. The NP Administration Service would then send a confirmation or unique NP Administration Service pin code by SMS to the subscriber's nominated number, which the Recipient Operator would then enter into/ send to the NP Administration Service; or
- Another subscriber validation mechanism as suggested by the Service Provider.

The proposed NP Administration Service should store incoming Porting approval requests and subscriber validation messages for a period to be defined in the detailed process. As soon as there is a match between a Porting approval request and a subscriber validation message (i.e. the Porting request numbers match AND the CLI/ Pin of the validation message match), then the system shall send the Porting approval request to the Donor Operator. If a match is not achieved by a time to be specified in the detailed process, then the NP Administration Service shall delete the Porting approval request and the validation message.

The proposed NP Administration Service is required to notify Porting subscribers via email or SMS message, of the progress of their Porting request. Such notification may include: (i) confirmation that the Porting request has been approved and is being processed; or (ii) Porting request has been rejected; or (iii) advising the subscriber that their service is about to be transferred to the recipient operator etc.

The NP Administration Service should be capable of logging and reporting the data related to all initiated Porting requests, irrespective of whether Porting requests are completed or aborted.

6.3 Cancellation

Final decisions as to cancellation remain to be determined in the ARKEP LNP Business Rules document.

For the purpose of this RFP, Respondents should assume that the subscriber may only cancel a Porting request by contacting the Recipient Operator before the point at which the NP Administration Service has matched the incoming Porting approval request and validation message and forwarded the Porting approval request to the Donor Operator. The subscriber may therefore cancel a Porting request by NOT sending the validation message. If the subscriber wishes to cancel the Porting after the validated Porting approval request has been

forwarded to the Donor Operator, this can only be facilitated by allowing the Porting request to proceed to completion and for the Recipient Operator to arrange for the subscriber's number to be ported back to the Donor Operator via the Cooling Off facility. Thus, there is no need for a specific cancellation process between the Donor Operator and Recipient Operator.

6.4 Cooling Off/ Emergency Repatriation

For the purpose of this RFP, the NP Administration Service Respondents should assume that a subscriber who wishes to cancel a port (i.e., to return to the Donor Operator after the Porting transaction has been completed), will have to request the Recipient Operator to arrange a second Porting in the reverse direction after the Porting has been completed. Similarly, if a Porting transaction is later found to be fraudulent or not authorised by the legitimate subscriber, then the number(s) will be returned to the Donor Operator.

The NP Administration Service shall verify and allow the second/ return Cooling Off Porting request to proceed, only if the return Porting approval request stipulates the previous Donor Operator is the new Recipient Operator and the reverse/ return Cooling Off Porting request is received within the specified timeframe defined in LNP Business Rules. For clarity the NP process timeframes for onward porting restricted periods and Cooling Off may be different. All other Porting approval requests which stipulate a different operator from the original Donor Operator should be assessed against the Onward Porting rules/ checks and rejected by the NP Administration Service as appropriate.

The Emergency Repatriation function will work in a similar manner to the reverse/ return Cooling Off porting function but will only be used when the original/ previous Porting transaction is proved to be fraudulent or inappropriate. Unlike the reverse/ return Cooling Off porting function, the availability of the Emergency Repatriation function will not be time bound or time restricted.

6.5 Onward Porting

The NP Administration Service should include the facility to prevent subscribers' Porting onwards to another Operator (other than the Donor Operator in the case of Cooling Off requests) within a period of time specified in ARKEP Regulation nr.58 on number portability (3 months but might be subject to change). This facility may be required to prevent the unnecessary use, or the abuse of Porting resources.

The NP Administration Service should be capable of checking the previous Porting dates of numbers that are subject to new Porting requests, and where the previous Porting date is less than the specified Onward Porting time limit, the NP Administration Service should reject such Porting requests as part of the validation of Porting approval requests prior to or after

matching with the corresponding validation message. In such cases, the NP Administration Service should be capable of generating a reject response code back to the Recipient Operator and notifying the subscriber of the rejection of the Porting request by email or SMS.

6.6 Deferred Porting

The NP Administration Service should be capable of allowing subscribers to port their number within a specified period of time in the future, to enable subscribers to be able to select Porting dates which are convenient.

The NP Administration Service should be capable of allowing Recipient Operators to input future Porting dates within the specified period. In such cases, the NP Administration Service will only commence the processing of the corresponding Porting approval requests at a time to enable the requested Porting date to be met. Validation checking and matching of the subscriber's validation message by the NP Administration Service may be completed at the time the Porting approval request is submitted to the Donor Operator. The requirement to operationally include the Deferred Porting facility and the corresponding Deferred Porting period will be determined at a later date.

6.7 Return of Deactivated Number by Recipient Network

In normal circumstances at the end of the Quarantine period, a number that is part of the number block allocated to that authorized operator/ stakeholder can be re-allocated to a new subscriber.

When service on a ported number ceases, the recipient shall send an E.164 terminated message to the NP Administration Service and the Service Provider shall: (i) quarantine the terminated number for a specified period of time; (ii) inform the number range holder that the number is available to be returned to their number stock; and (iii) delete the number from the list of ported numbers. The NP Administration Service shall allow the number range holder to process a Porting request to transfer the deactivated number from the Recipient Operator to its own number stock.

6.8 Single Numbers and Number Series

The following processes must be supported by the Service Provider:

- 6.8.1 Porting of a single number as a single two-stage transaction; whereby the Recipient Operator submits a Porting approval request which is then verified by receipt of a validation message from the subscriber's number to be ported (as outlined in section 6.2). Once both the Porting approval request and subscriber validation message are received and matched by the NP Administration Service, the Porting request is processed, the Service Provider performs the specified validation checks and if successful, passes the validated Porting approval request to the Donor Operator for action.

-

6.8.2 Porting of multiple numbers (either random or a DDI block): Non- Contiguous or Contiguous blocks of numbers should be handled as a single transaction, with the first and last number of the block being entered. In either case, the NP Administration Service should be able to process the Porting of multiple numbers either in contiguous or non-contiguous blocks by offering both the number verification options detailed below: -

- a. Processing of a single subscriber authorisation validation message to verify number ownership of the entire block of numbers to be ported to enable the Service Provider to process and transfer the entire number block to the Donor Operator for processing; or
- b. Processing of individual subscriber validation messages from each of the numbers within the block to be ported to enable the system to process and transfer individual numbers within the block to the Donor Operator for processing.

NOTE: in 6.8.2a., the Donor Operator may either “Accept” or “Reject” the entire number block only, but if one or more numbers within the block have failed the Donor Operator’s validation, then the Donor Operator must reject the entire porting request and all the numbers contained therein are rejected en masse. The Donor Operator must be able to identify the number(s) which have failed the validation checks and identify the reason/ rejection code against each rejected number.

6.9 Range Update – Administrative Function

The NP Administration Service should support the addition of new number ranges and/or prefixes granted to an Operator.

6.10 New Operators

The NP Administration Service should support the addition of new operators, and merger or removal of existing Operators and the corresponding number ranges and prefixes.

6.11 Local Database Synchronisation

The NP Administration Service should provide database synchronisation files on a continuous basis to enable Operators to check the synchronisation of their local routing databases with the central reference database.

The NP Administration Service should update the database synchronisation files every 24 hours (both in full database and recent change/ exception Porting data content) and should provide the synchronisation files in .csv format.

6.12 Quota Management

The NP Administration Service should be capable of managing daily/weekly Porting quotas between the Authorized operators/ stakeholders to ensure consistent Porting performance and timescales between all Operators at all times.

The NP Administration Service should be capable of managing daily or weekly Porting quotas in line with the requirements set by setting the projected Porting dates based on current Porting demand versus the specified daily/ quota limits. For instance, where a Recipient Operator exceeds its daily/ weekly Porting quota against a specific Donor Operator, further Porting approval requests should be allocated to the next period (day or week) for which sufficient quota is available.

The NP Administration Service should permit the resetting of quotas, in circumstances to be determined based on the recommendations of the NPWG.

6.13 Response Reasons

The NP Administration Service should log each message including the response reasons to ensure that statistics will be available for any subsequent enquiry or report that may be needed.

Response and reject reasons will be specified later but the NP Administration Service should handle up to 100 numbers within a block Porting request and be capable of sending multiple rejection reasons in a single response message. ARKEP has determined that a Donor Operator must provide all applicable reasons for 'Rejecting' a request.

It should be possible to specify or add new response codes. NB: The codes are selected by the Donor Operator from an agreed and defined list defined and so the NP Administration Service need not know the exact meanings.

The list of codes and their meanings will be specified later as part of the NPWG process in the LNP Business Rules.

6.14 Information Delivery

6.14.1 Investigatory Powers

The Service Provider must provide for the requirements of Law Enforcement Agencies and Emergency Services in Kosovo, the precise details of which will be addressed by ARKEP based on recommendations of the NPWG and notified to the successful NP Service Provider.

Without prejudice to the generality of the foregoing, the NP Administration Service should be capable of performing two additional steps, subject to further direction:

1. When a Donor Operator returns an accepted Porting approval response message, the system should be capable of forwarding a copy of the message to a secure database located within the relevant Law Enforcement Agency/ Emergency Services; and
2. When the NP Administration Service generates the final 'Routing Change' information to each Operator, the system should be capable of forwarding a copy of that information to the relevant Law Enforcement Agency/ Emergency Services.

Respondents are requested to provide details relating to their previous experience in dealing with this particular aspect of Porting.

6.14.2 Service Usage

The Service Provider should be able to provide monthly lists of all failed and successful Porting transactions between each combination of Recipient and Donor Operators.

6.15 Reporting

6.15.1 Statistics

The NP Administration Service should produce statistical information related to NP activities. The statistics should include but not be limited to:

- Number of Porting Approval Requests received by each Donor Operator during the reporting period;
- Number of Porting Approval Requests accepted by each Donor Operator during the reporting period;
- Number of Porting Approval Requests refused by each Donor Operator during the reporting period;
- Number of Porting Approval Requests failed (due to system failure) to each Donor Operator during the reporting period

- Number of Porting Approval Responses sent late by each Donor Operator during the reporting period;
- Number of Porting Deactivation Requests received by each Donor Operator during the reporting period;
- Number of Porting Deactivation Requests accepted by each Donor Operator during the reporting period;
- Number of Porting Deactivation Requests not completed by each Donor Operator during the reporting period;
- Number of Porting Deactivation Requests failed (due to system failure) by each Donor Operator during the reporting period
- Number of Porting Deactivation Responses sent late by each Donor Operator during the reporting period;
- Number of Porting Approval Requests sent by each Recipient Operator during the reporting period;

- Number of successful Portings to each Recipient Operator during the reporting period;
- Number of uses of each Porting Approval Response Reject reason code by Donor Network;
- Number of uses of each Porting Deactivation Response Reject reason code by Donor Network; and
- Total ported numbers served by each Operator at the end of the reporting period.
- Number of Porting requests not finished by customer (SMS not sent)

ARKEP may at its discretion request additional NP data elements to be added to reporting suite or may periodically request specific NP reports or statistics which will be provided in a timeframe agreed with the Service Provider. Please state if additional price will be requested by NP service provider in this case!

6.15.2 Reporting/Output Format

Reports and statistics should be:

1. Viewable remotely using a Browser (graphs, tables, etc.); and
2. Downloadable as electronic files (pdf-files, csv format and excel spreadsheet format).
3. Different aggregation period of statistics should be available (at least: 15min, 1hour, 1 day, 1 month aggregation)

6.16 Numbering in Kosovo

ARKEP is responsible for the administration of numbering resources in Kosovo.

6.16.1 Number Range

The NP Administration Service being offered should support Fixed and Mobile Number Porting in Kosovo for fixed and mobile telephone number ranges.

6.16.2 Number lengths

Operators in Kosovo currently use number ranges allocated by ARKEP. ARKEP's numbering policies comply with ITU number range standards. Although the range of numbers available to the Authorized operators/ stakeholders is relatively large, there is a chance that the Numbering Plan could change over time and therefore the system should be able to handle the Porting of numbers that are not always of the same length.

Kosovo telephone numbers currently comprise ten (11-12) digits in the following format:

Mobile: + CC (3digits) + NDC (2 digits) + SN (6 digits)

Fixed: +CC (3 digits) + NDC (2 or3 digits) + SN (5 or 6 digits)

The first three (3) digits (+ CC) comprise the international Kosovo code as defined in ITU-T Recommendation E.164 which is + 383.

In addition, the Service Provider should describe how its proposed solution could deal with ENUM and any other future developments that might affect Numbering Plans.

6.16.3 Number Look-up Facility

With the introduction of NP, it will become increasingly difficult for an Operator to be clearly identified by its number prefix. Should authorized operators/ stakeholders charge differently for calls that remain on their network (On-net) versus those that are no longer on their network (Off-net), it will become more difficult for subscribers to find out how much a particular call will cost.

Therefore, please indicate whether your NP Administration Service can provide a facility accessible over the internet or by SMS or using a voice response system whereby a potential caller can determine which network serves a given number.

Please state whether there would be any additional charge for this facility, providing details on whether this option can be provided from the centrally held database or would it be implemented independently by Operators allowing access to their own database.

Please advise whether your proposed NP System Administration solution could be linked or interfaced to operator's existing Freephone/toll-free or SMS/ text back information services.

6.16.4- Differentiation of Geographic/ Location based numbering

ARKEP is proposing to offer national number portability whereby it is only possible for a subscriber to port their fixed or mobile number/ service within Kosovo. Number portability in Kosovo will be restricted to mobile to mobile and fixed to fixed services only. Porting of mobile numbers to fixed services and vice versa will not be permitted.

To support national number portability, it will be necessary for the NP Administration Service to be able to distinguish between different locations within Kosovo during the Porting process. For instance, in case of fixed geographic numbers the porting data stored and managed by the NP Administration Service will be required to include details of the current location of the ported number.

Currently, some operators in Kosovo use the number ranges within the allocated subscriber number to identify the location of the subscriber. While others use the same numbering range for the whole territory, but, identification of location is done by the consumer physical address.

Please confirm your proposed NP Administration Solution is capable of identifying different number locations and processing identified national porting requests (where the recipient and donor will provide service to the subscriber in the same geographical location).

7. Porting Process

The porting process should be in line with ARKEP Regulation nr.58 on Number Portability and the LNP Business Rules. The first draft of the LNP Business Rules will be provided to the short listed Respondents.

8. Technical requirements

8.1 Data Record Structure

Please find below a template of how the number record could be laid out. The intention is that it would be possible to extract statistical information about the number of times a number has been ported, etc. The record would hold the current Operator Code, date and time of port, the number of previous Portings and the port reference number of these Portings.

Please indicate how you would set up the records in your solution and your method of protecting that data (encryption).

Field Description	Field	Size	Example
Subscriber Number	1	12	Mobile MCC(3) + MNC(2) + SN (6 digits) Fixed CC(3) + AC (3) + SN(6)
Status Code	2	1	1-Free to be Ported, 2-Request to Port in process, 3-blocked from subsequent Porting until retention period has ended
Current Network Designation (Routing Number)	3	3	XXX Operators with unique identifiers
Requested Date/Time that the Instruction Request was sent	4	14	20230630142011 8 (yyyymmdd) + 6 hhmmss)
Actual Date/Time that a Instruction Response confirming completion of the port was sent	4	14	20230630142011 8 (yyyymmdd) + 6 hhmmss)
Port Reference Number	5	13	01nnnnnnnnnn Unique to each operator
Counter to indicate the number of times the number has been ported	6	5	0-99999
Port Reference Number from previous port	7	13	01nnnnnnnnnn

Customer ID	8	4	4 last digits of customer ID

8.2 Logging of activities and archiving of data

Each message sent via the NP Administration Service shall be recorded and logged. Messages more than two years old may be stored off-line or archived.

NB: Assuming 30,000 ports per annum and 5 messages of 60 bytes per message, this is approximately 9MB per annum.

The NP Administration Service shall be capable of extracting and displaying all the messages relating to a given number for a minimum period of seven (7) years, with Porting data stored and available for online access for a minimum period of two (2) years, and the Porting data being archived offline for the remainder of the minimum storage period.

8.3 NP Administration Service - System Management

8.3.1 Fault Management Functions

The Service Provider should produce daily detailed error logs and monthly summaries. This data would be used to determine problem frequency and would form part of the SLA review process.

Please indicate what error logs and reports your solution provides.

8.3.2 Hardware & Software Configuration Management

The Service Provider must follow a structured methodology for installing software patches and/or new functionality in any of the software components, which supply the NP Administration Service.

The Respondent should include in its proposal details of the process it would implement for advising ARKEP and authorized operators/ stakeholders of the need to temporarily suspend operations in order to upgrade the existing system, and how it would plan a reversal should the upgrade not be successful.

8.3.3 Hardware/Software/Database Platforms

The Respondent must describe its hardware architecture and provide the reasons why it has selected that particular environment over other architectural solutions.

If the Respondent's solution requires non-standard hardware or a specialised operating system it should highlight this in its proposal.

ARKEP preference is for solutions which are based on open-source standards and protocols which are not dependent on authorized operators/ stakeholders procuring proprietary hardware or software.

Please outline your database choice and provide the reasons why you have selected that particular solution over other solutions.

In addition, Respondents should provide the following;

- a. Details of its system hardware scalability plan;
- b. Logic flow diagram (as well as how each model interoperates with the other);
- c. Detailed messaging parameter;
- d. Description of hardware architecture; and
- e. Reasons for selection of the system architecture.

8.3.4 Access to IT, Downloads & Uploads

The Respondent's solution must be secure and have appropriate independently verifiable access controls for users and systems (e.g., Encrypted databases, Firewalls and other controls, dedicated VPN environment, multi-layered Protocols etc.). The Respondent should outline why it is proposing this particular solution, including features, benefits and any potential challenges.

In addition the solution should also include audit trails for: security events, applications events, system events, user activity, database access activity etc , for analysis of management, operational and technical controls, to improve the auditability of systems.

8.3.5 Connectivity Requirements

Please specify the input and output connectivity requirements that are necessary to connect/ communicate with the proposed NP Administration Service, including but not limited to: -

1. Type of connectivity required for the Operators to connect to the NP Administration Service for the automatic control mode or Application Programming Interface (API);
2. Security requirements for connectivity for the automatic control mode or API;
3. Connectivity to the manual control mode or Graphical User Interface (GUI), i.e., firewall settings etc;
4. Connectivity and protocols for transiting incoming subscriber validation email/ IVR/ SMS/ Pin messages and outgoing subscriber progress email/ SMS communications;
5. Nature of the IVR/ email/ SMS validation message processing and subscriber communication infrastructure used in your solution; and
6. Connectivity and protocols used for sending broadcast messages to operators' local routing databases.

8.3.6 Interface Protocols

Please identify all interface protocols that you propose to make available to the Operators for the automatic control mode or API and indicate why you have selected it/them. A few common interface protocols below are listed for consideration:

1. HTTP
2. RestAPI
3. XML
- 4.SFTP
5. CORBA
- 6.HTTPS

8.4 Backup, Restore & Disaster Recovery

8.4.1 Real-time Backups Online

Real time incremental back-ups must be supported as per the SLA.

8.4.2 Full Backup

The NP Administration Service must support full on-site and off-site (i.e., a support location other than the Service Provider's primary operational site/ facility) backups. Please indicate how long you estimate it would take to perform a complete backup, where the backup data would be stored and how often off-site backups will be provided.

The Respondent should provide details of security plans for the NP Administration Service to ensure Kosovo Porting data integrity is maintained and protected.

8.4.3 Restore

It must be possible to restore in no more than 6 hours but with the restoration being carried out as soon as possible irrespective of the time of day or night.

8.4.4 Disaster Recovery

Bearing in mind the critical nature of this solution, please describe in detail your experience in designing Disaster Recovery solutions and any experiences you have had when such a recovery was put into action. Please state your disaster recovery/ contingency planning including off site/ back-up plans, redundancy/resilience plans and testing schedules and procedures.

8.5 Availability

The NP Administration Service should be designed for operation for the following times:

24 x 7 (please refer to table in section 4.2 for SLA definition of availability).

Helpdesk and operational support should be available by phone, email and electronic access to align with Kosovo normal working times (Days and Hours), including national public holidays, and taking into account any time difference between the Service Provider's support location and Kosovo. Normal working times in Kosovo are typically, Monday to Friday, 08.00hrs to 16.00hrs.

Please confirm what redundancy you have for the solution (e.g., dual servers - two or more servers to ensure resilience and redundancy for the NP Administration Service), RAID etc.

Please be advised that penalties will be applied if availability does not comply with the levels in the SLA. Availability of the NP Administration Service will be measured under the SLA process, and reviewed on a regular basis.

Regular maintenance should be handled outside normal Porting hours (local time). Please provide a comprehensive maintenance plan outlining the nature of maintenance required including how and when this will be completed.

8.6 Additional Features

Please describe your standard user interface together with any additional features and functionality that you wish to offer together with the relevant prices. Please note ease of use will be a key consideration in the evaluation of proposals.

9. Message formats

The following is included assuming that messages are sent in xml format with markers for the start and end of each field. A fixed field length format is also acceptable, in which case section 8.1 contains some information on the field lengths required.

9.1 Porting Approval Request

transactionId	Long	GUID or an incrementing sequence number, which uniquely identifies a complete transaction and is prefixed by the Recipient Operator Code. The Recipient Operator is responsible for generating a correct sequence number.
recipientOperator	Integer	Recipient Operator code – This field represents the sender of the request.
donorOperator	Integer	Donor Operator code – This field represents the receiver of the request. .
dateTime	String	Date and time of operation in the format YYYYMMDDHH(24)MMSS NB: The hours are expressed using the 24-hour clock but the "24" is not included in the encoding, e.g., 22 April 2023 at 11:55:26 will be shown as 20230422115526.
E.164 number (and E.214 Equivalent)	String	The 11-digit subscriber number to be ported
SpareField1	Integer	To be defined
SpareField2	Integer	To be defined
SpareField3	Integer	To be defined
SpareField4	Integer	To be defined
checksPassed	String	To be defined
extraInformation	String	A free form field that is not used for processing the request but should be returned as is in the Porting approval response message.
Customer ID	Integer	4 last digits of customer ID

9.2 Porting Approval Response

transactionId	Long	GUID or the sequence number, which uniquely identifies a complete transaction and is prefixed by the Recipient
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		Operator Code. This should be the same transaction id as the one sent in the Porting approval request.
recipientOperator	Integer	Recipient Operator code – This field represents the receiver of the response.
donorOperator	Integer	Donor Operator code – This field represents the sender of the response.
dateTime	String	Date and time of the message in the format YYYYMMDDHH24MMSS
E.164 number (and E.214 Equivalent)	String	The 11-digit subscriber number to be ported
ResponseCode	Integer	To be defined
SpareField1	Integer	To be defined
SpareField2	Integer	To be defined
SpareField3	Integer	To be defined
SpareField4	String	To be defined
ExtraInformation	String	A free form field that is not used for processing the request but should be returned as is in the Porting approval response message.
Customer ID	Integer	4 last digits of customer ID

9.3 Porting Deactivation Request

transactionId	Long	GUID or the sequence number, which uniquely identifies a complete transaction and is prefixed by the Recipient Operator Code. This should be the same transaction id as the one sent in the Porting approval response.
recipientOperator	Integer	Recipient Operator code – This field represents the sender of the request.
donorOperator	Integer	Donor Operator code – This field represents the receiver of the request.
dateTime	String	Date and time of the message in the format YYYYMMDDHH24MMSS
E.164 Number (and E.214 Equivalent)	String	The 11-digit subscriber number to be ported
SpareField1	Integer	To be defined

SpareField2	Integer	To be defined
SpareField3	Integer	To be defined
SpareField4	String	To be defined
extraInformation	String	A free form field that is not used for processing the request but should be returned as is in the Porting approval response message.
Customer ID	Integer	4 last digits of customer ID

9.4 Porting Deactivation Response

transactionId	Long	GUID or the sequence number, which uniquely identifies a complete transaction and is prefixed by the Recipient Operator Code. This should be the same transaction id as the one sent in the Porting approval request.
recipientOperator	Integer	Recipient Operator code – This field represents the receiver of the response.
donorOperator	Integer	Donor Operator code – This field represents the sender of the response.
dateTime	String	Date and time of the message in the format YYYYMMDDHH24MMSS
E.164 number (and E.214 Equivalent)	String	The 11-digit subscriber number to be ported
ResponseCode	Integer	To be defined
SpareField1	Integer	To be defined
SpareField2	Integer	To be defined
SpareField3	Integer	To be defined
SpareField4	String	To be defined
ExtraInformation	String	A free form field that is not used for processing the request but should be returned as is in the Porting approval response message.
Customer ID	Integer	4 last digits of customer ID

9.5 E.164 Ported

transactionId	Long	GUID or the sequence number, which uniquely identifies this transaction.
recipientOperator	Integer	Recipient Operator code.
dateTime	String	Date and time of the message in the format YYYYMMDDHH24MMSS
E.164 Number (and E.214 Equivalent)	String	The 11-digit subscriber number ported
Customer ID	Integer	4 last digits of customer ID

9.6 E.164 Terminated

transactionId	Long	GUID or the sequence number, which uniquely identifies this transaction.
recipientOperator	Integer	Recipient Operator code.
blockOperator	Integer	Block Operator code. (=range holder)
dateTime	String	Date and time of the message in the format YYYYMMDDHH24MMSS
E.164 Number (and E.214/ Equivalent)	String	The 10-digit subscriber number ported
Customer ID	Integer	4 last digits of customer ID

10. Format of Submission

All proposals must comply with the format set out in this section in order to ensure that the information is presented in a manner which can be evaluated fairly and effectively. While failure to comply with this format will not disqualify a Respondent, it may prejudice the Respondent's proposal in relation to others submitted in accordance with the required format.

The Proposals should be clearly divided into sections, headed as follows and containing the relevant information in each part.

Section 1 – Executive Summary

Section 2 – Service Description and Technical Details

Section 3 – Implementation Schedule

Section 4 – Training and Documentation

Section 5 – Commercial Offer

Section 6 – Experience and References

Section 7 – Contractual Details

Section 8 – Miscellaneous Information

Section 9 – Submission Checklist

The remainder of this section sets out a brief summary of the information that should be included in each section of the Proposal.

10.1 Section 1 – Executive Summary and Respondent Information

The proposal should be prefaced with an Executive Summary which highlights the salient points of the Respondent and its proposal.

This section should also include detailed information about the Respondent, including:

Incorporation: Provide full company incorporation and business registration information.

Contact Details and Location: Provide contact details for the Respondent and information which outlines the control and guidance of the Respondent.

Ownership: Identify all shareholders of the Respondent if private, or for a public company, all shareholders owning more than 5% of the issued share capital, including

names, addresses and shareholding. Such declarations should also identify the ultimate as well as immediate shareholder of the Respondent as well as identifying any potential conflict of interest with any interested party involved in this programme.

Financial Statements: Provide complete audited Financial Statements for the Respondent for the preceding financial year, if available. For Respondents which are not required by law to produce and file audited statements in their Country of incorporation, unaudited financial statements certified by the Chief Financial Officer of the company may be submitted.

Financial References: Provide two (2) original reference letters from recognized, regulated financial institutions. References must be addressed to ARKEP and must be dated no more than thirty (30) days prior to the date of the application.

10.2 Section 2 – Service Description and Technical Details

This section of the proposal should cover the specific details of the NP Administration Service which would be supplied by the Respondent, including all technical specifications, in accordance with Chapters 4 through 9 of this RFP. Respondents can organise the information in any format within this section but should be sure to cover or respond to all of the issues set out in the relevant sections of the RFP.

The Service Provider should demonstrate that it is compliant with the necessary conditions for proprietary elements that are included in their solution.

- 10.2.1 When describing the technical specifications for work, supplies or services required in the field of information technology and telecommunications, the Contracting Authority must prohibit technical descriptions that: a) specify equipment, services and questionable manufacturers of information technology and telecommunications; b) pose a risk to cyber security and the country's critical infrastructure; and c) pose a risk to the country's national security.
- 10.2.2 The Contracting Authorities must ensure that the specified equipment, services and manufacturers do not belong to countries (states) for which the Government of Kosovo has imposed import/export sanctions, or countries, products, services and supplies of which are considered unreliable by any of the organizations/countries, such as: the European Union, the United States of America, NATO, the OECD or the European Free Trade Association.
- 10.2.3 In any case, CA in addition to the preparation of technical specifications, paragraphs these security measures must be taken into account and applied during the stage of evaluation of offers and selection of the contractor. If the supplier, manufacturer, service (including under supplies/products/ services) included in the offer belongs to the definitions according to paragraphs 10.2.1 and 10.2.2, the CA must automatically exclude them from the competition.

These security conditions apply to the NPC solution in general, including the interconnecting MNP platforms from all the interconnecting parties.

10.3 Section 3 – Implementation Schedule

A detailed schedule for the implementation of the NP Administration Service which meets ARKEP's requirements for NP launch must be included in the proposal. All relevant activities should be included, together with any relevant dependencies between tasks. Where possible the information should be presented both as a list of tasks as well as in Gantt chart format.

The activities will be based on the closure of the RFP – Day 05 July 2023 – Termed T0

The activities must include, at a minimum, the following milestones:

- i. Development and Implementation Contract signed between Service Provider and the authorized operators/ stakeholders (TBD) – Anticipated Date: **T0 + 3 months**;
- ii. Authorization Issued by ARKEP – Anticipated Date - **T0 + 3 months**
- iii. Specification gathering phase sign-off by the Service Provider, NPWG – Anticipated Date: **T0 + 3 months**;
- iv. Commissioning of the NP Administration Service and provision of initial documentation by **T0 + 6 months**;
- v. NP Administration Service acceptance testing passed no later than **T0 + 7 months** (These tests will need to be defined and agreed during the specification gathering phase of the service implementation plan);
- vi. Training completed by or before **T0 + 7 months**;
- vii. Final documentation available by **T0 + 8 months**; and
- viii. Launch of NP – Anticipated Date: **T0 + 15 months**.

The final schedule will be agreed between ARKEP, NPWG and the Service Provider, based on the anticipated timeframes for completion of deliverables indicated by the above dates. All dates are based on the authorization date of **T0 + 3 months**. Should this date prove to be later, the milestones (other than the launch date of **T0 + 15 months**) may then be adjusted accordingly. The time schedule must be in accordance with the ability to deliver the required functionality.

The Respondent must guarantee delivery to initiate authorized operator/ stakeholder acceptance testing at a minimum no later than **T0 + 7 months** and be ready to start the service no later than **T0 + 15 months**.

A project plan will be prepared by the Service Provider and agreed by NPWG and ARKEP with critical milestones identified and responsibilities assigned.

In case the Successful Provider is in delay or fails to fulfill its obligations pursuant the Agreement, Successful Provider shall be required to pay to the Contracting Authority liquidated damages in the amount of 0.25 percent (0.25 %) of the contractual value for each

calendar day of delay, but this amount shall not exceed 10 Percent (10 %) of the contractual value.

If the Contracting Authority has acquired the right to demand at least 10% of the contract value, after notifying the Service Provider in writing, may terminate the contract, in which case the Service Provider will not be entitled to compensation.

The successful Service Provider will be required to provide a bank guarantee and shall be valid for the duration of the contract.

10.4 Section 4 – Training and Documentation

10.4.1 Training

The proposal must contain proposals for conducting all necessary and appropriate training for relevant staff of the authorized operators/ stakeholders and ARKEP staff.

The training should be appropriate for:

- Regulatory personnel involved in the monitoring of NP;
- Operator NP Sales & Administrative Support teams; and
- Operator IT & Network Management Control teams where applicable.

Training should be quoted for, at a minimum, the following two cases:

- i. Launch Training – training supplied to ARKEP and the authorized operators/ stakeholders in order to launch NP to be included in the basic “usage” or annual subscription-based pricing; and
- ii. Individual Training – training supplied to meet refresher/ update needs of individual Operators following the launch of NP and/ or to train new Operators who may join and use the NP Administration Service after launch.

10.4.2 Documentation

Detailed technical and operations manuals for the service should be delivered by the time the initial set-up has been completed with one hard copy and one soft copy being made available to each of ARKEP and the authorized operators/ stakeholders. Please describe the documentation structure:

- i. If provided in electronic form, please describe how the documents can be handled by a viewing tool or similar; please include a description of the user interface to the documentation;
- ii. Manuals must be in English; and

- iii. Manuals must describe actually delivered versions of the service. If modifications have been made to the initial offering, these modifications must be documented and included with any standard documentation.

10.5 Section 5 – Commercial Offer

Proposals should include a detailed commercial offer setting out all prices for the NP Administration Service, including charges for all necessary services included, as well as other likely incidental or additional charges, and any optional features. Prices should be shown both inclusive and exclusive of VAT and withholding tax.

The price must be based on the information and requirements listed throughout this RFP. Any assumptions made must be explicitly stated. All prices must be stated in Euros and valid for 180 days from the submission deadline.

The commercial offer should be structured as follows:

- i. Price Structure – monthly/ annual subscription basis charged to Operators using a charge allocation methodology to be determined by NPWG/ARKEP, to cover initial set-up costs including project management, development/ customisation; documentation on the use of the service, basic operator training; and subsequent operating and management costs for providing the service in compliance to the proposed authorization arrangements (i.e., common authorization framework issued by ARKEP);
 - a. Provide Total Cost of Ownership (TCO) for each NP Administration Service option based on a - 5-year fixed licencing period including the provisions detailed by clauses b, d, f, g, h, l, j, k and l below;
 - b. Provide separate pricing models for NP Administration Services located within Kosovo and hosted overseas options;
 - c. Provide monthly/ annual subscription charge options based on the forecast porting demand thresholds defined in section 5.2;
 - d. Provide monthly/ annual subscription charge options with separate initial set-up charges and inclusive of initial set-up charges;
 - e. Define whether additional porting volume driven transaction-based charges will apply;
 - f. Define whether additional porting transaction fees are applicable, i.e., receiving and sending messages from and too subscribers;
 - g. Provide costs for making the following changes or amendments to the NP Administration Service;
 - i. Changes to porting process activities, i.e., revised message content or additional activities such as quota management, deferred porting etc;
 - ii. Changes to porting process timers;

- iii. Changes to approved or nominated parties permitted to participate in the NP Administration Process;
- iv. Changes to allocated number ranges;
- v. Changes to Routing Numbers allocated to nominated parties; and
- vi. Read only access to the NP Administration Service for approved third parties as notified by ARKEP
- h. Licence fees for software if separate from the subscription charges;
- i. Additional fees and impact of adding additional Operators (fixed and mobile) to the NP Administration Service;
- j. Training;
- k. Customisation / development work to provide API for Mobile Operators (Should be included but this is not part of the main contract and may be taken up by individual Operators as necessary); and
- l. Legal/ Contractual requirements, including Escrow safeguarding of source code etc, including pricing and timescales to conclude contracts.

Prior to submitting its proposal, the Respondent should carefully consider the nature and scope of the work to be done as well as any difficulties involved in its proper execution. Respondents must include all costs necessary to cover all contingencies essential to successfully implement and commission the NP Administration Service. Any cost that is not specifically itemised shall not be considered part of the proposal unless specifically referenced in a separate document and agreed in writing by NPWG. No claims for compensation will be considered or allowed for extra work resulting from non-observation of this stipulation.

10.6 Section 6 – Experience and References

This section of the proposal should describe all other similar NP projects that you have undertaken within the past ten (10) years (at least 3 NP database implementations) and give contact details for the regulatory and operator customers involved.

The details of each project should include a description of the service/system provided, the period when the project was handled, the contractual framework used, the current status (completed or on-going), and the entities (regulator and all operators) involved in the projects.

Contact details should include the name and address of the regulator or operator(s) involved; the name of relevant contact person(s); and their email addresses. NPWG reserves the right to contact and request references and verification of information from the persons identified. Respondents should identify those customers that may be willing to provide a demonstration of the service/system to the NPWG.

Provide CVs of at minimum 3 number portability experts related to NP SW development.

Please also provide details of your organization structure, indicating the number of staff involved in technical, support, administration and business development functions related to number portability services.

The Respondent should include a clear statement in their proposal that the Respondent has no conflict of interest with any operator or party authorized by ARKEP to provide telecommunications services in Kosovo, and/or that it shall not place itself in such a position. The Respondent shall disclose any matter which in its view may breach such a conflict of interest.

The respondent and its local affiliates should not be part of any court cases related to number portability in past 5 years in any country.

The respondent or its local affiliates should not be shareholders in Companies as a bidder, from legal and natural persons as resident(s) from countries, which have not signed bilateral economic agreements with Kosovo.

10.7 Section 7 – Contractual Details

The proposals should include full details of any specific contractual arrangements required or proposed by the Respondent, having regard to ARKEP's expressed intention regarding authorization and contracting for the NP Administration Service.

The successful Service Provider will comply with all laws, codes, ordinances, rules and regulations applicable to the work being performed.

If the successful Service Provider decides to use the services of one or more sub-contractors, the involvement of such sub-contractors shall be subject to approval. The Service Provider retains full responsibility for all actions and quality of workmanship of sub-contractors, and the meeting of all deliverables.

The Service Provider should include the services of a competent Project Manager who has the authority to act for the Service Provider during the whole duration of the project, from specification collection through to public launch of the service. The Project Manager will manage the project until the final sign-off of the service.

10.8 Section 8 – Miscellaneous

In this section, the Respondent may include any further or additional matters relevant to the proposal not covered in the sections above.

10.9 Section 9 – Submission Checklist

In this section, the Respondent is required to complete the submission checklist using the template and terminology outlined in this section to verify their proposal is complete and to indicate the level of compliancy of the Respondent’s proposal to the key requirements of the RFP. The completed table should be included in the Respondent’s proposal document.

Where the checklist specifies “Noted?”, the Respondent is required to enter the response “Noted and Understood” to confirm that the Respondent understands the requirement or obligation specified in the relevant section of the RFP.

Where the checklist specifies “Compliant?”, the Respondent should ONLY enter the following responses based on their level of compliancy to the requirements or obligations specified in the relevant section of the RFP: -

- **“Fully Compliant”** – The Respondent’s solution fully meets all requirements or obligations in the relevant section of the RFP;
- **“Partially Compliant”** – The Respondent’s solution meets some but not all of the requirements or obligations in the relevant section of the RFP. The Respondent is free to include an explanation for their partial compliancy of the RFP requirements or obligations in the notes field in the checklist; and
- **“Non-Compliant”** The Respondent’s solution meets NONE of the requirements or obligations in the relevant section of the RFP. The Respondent is free to include an explanation for their non-compliancy of the RFP requirements or obligations in the notes field in the checklist.

10.9.1. Submission Checklist Template

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
1	Introduction	Noted		
2	Kosovo & Telecommunications Operations	Noted		
3.1	The Requirements for the NP Administration Service	Noted		
3.2	Future Developments	Noted		
3.3	ARKEP and Licence Structure	Noted		

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
3.4	Data Protection	Compliant		
3.5	Selection of Possible Service Providers	Noted		
3.6	Number Portability Working Group	Noted		
3.7	Establishing and operating a business in Kosovo	Noted		
4.1	The Service Required	Compliant		
4.2	Licensing and Service Levels	Compliant		
4.3	Customisation – NP Administration Service	Compliant		
5.1	Automation	Compliant		
5.2	Dimensions & Scalability	Compliant		
5.3	Administration Services	Compliant		
5.4	Availability of NP Administrative Service for test purposes	Compliant		
6.1	NP Processes and Transactions	Noted		
6.2	Customer Validation/ Authorisation Facility	Compliant		
6.3	Cancellation	Compliant		
6.4	Cooling Off/ Emergency Repatriation	Compliant		
6.5	Onward Porting	Compliant		
6.6	Deferred Porting	Compliant		

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
6.7	Return of Deactivated Number by Recipient Network	Compliant		
6.8.1	Porting of a Single Number	Compliant		
6.8.2	Porting of Multiple Numbers	Compliant		
6.9	Range Update	Compliant		
6.10	New Operators	Compliant		
6.11	Local Database Synchronisation	Compliant		
6.12	Quota Management	Compliant		
6.13	Response Reasons	Compliant		
6.14.1	Investigatory Powers	Compliant		
6.14.2	Service Usage	Compliant		
6.15.1	Statistics	Compliant		
6.15.2	Reporting/ Output Format	Compliant		
6.16.1	Number Range	Compliant		
6.16.2	Number Lengths	Compliant		
6.16.3	Number Look-Up Facility	Compliant		
6.16.4	Differentiation of Geographic/ Location based numbering	Compliant		
7.	Porting	Compliant		
8.1	Data Record Structure	Compliant		
8.2	Logging of activities and archiving of data	Compliant		

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
8.3.1	Fault Management Functions	Compliant		
8.3.2	Hardware & Software Configuration Management	Compliant		
8.3.3	Hardware/ Software/ Database Platforms	Compliant		
8.3.4	Access to IT, Downloads & Uploads	Compliant		
8.3.5	Connectivity Requirements	Compliant		
8.3.6	Interface Protocols	Compliant		
8.4.1	Real-time Backups Online	Compliant		
8.4.2	Full Backup	Compliant		
8.4.3	Restore	Compliant		
8.4.4	Disaster Recovery	Compliant		
8.5	Availability	Compliant		
8.6	Additional Features	Noted		
9.1	Porting Approval Request	Compliant		
9.2	Porting Approval Response	Compliant		
9.3	Porting Deactivation Request	Compliant		
9.4	Porting Deactivation Response	Compliant		
9.5	E164/E214 Ported	Compliant		
9.6	E164/ E214 Terminated	Compliant		

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
10.1	Section 1 – Executive Summary and Respondent information	Compliant		
10.2	Section 2 – Service Description and Technical Details	Compliant		
10.3	Section 3 – Implementation Schedule	Compliant		
10.4	Section 4 – Training and Documentation	Compliant		
10.5	Section 5 – Commercial Offer	Compliant		
10.6	Section 6 – Experience and References	Compliant		
10.7	Section 7 – Contractual Details	Compliant		
10.8	Section 8 – Miscellaneous	Noted		
10.9	Submission Checklist	Compliant		
11.1	Submission Requirements	Compliant		
11.2	ARKEP Contact Details	Noted		
11.3	Register of Interested Persons	Compliant		
11.4	Clarification, Questions and Additional Information	Noted		
11.5	Expenses	Compliant		
11.6	Confidentiality	Compliant		
11.7	Selection Procedure and Criteria	Noted		

RFP Clause Reference	Description	Noted/ Compliant	Respondent Response	Respondent Comments
11.8.1	Issue of RFP	Noted		
11.8.2	Deadline of Submission of Proposals	Compliant		
11.8.3	Selection and Notification of Short-listed Respondents	Noted		
11.8.4	Presentations by Short-listed Respondents	Noted		
11.8.5	Selection of and Negotiation with Service Provider	Noted		
12	Programme & Project Management	Noted		

11. The RFP and Selection Processes

11.1 Submission Requirements

Respondents must submit their response and all associated documents in accordance with the following guidelines:

Soft and Hard Copy Submission

Respondents should submit their offers by mail and by hand. Procedures for submission, sealing and marking are as follows:

(a) Respondents submitting offers by mail and by hand shall enclose the original and 2 copies of the Tender in separate sealed envelopes. The envelopes shall be duly marked as "ORIGINAL," "ORIGINAL COPY," and "ALTERNATIVE COPY". These envelopes shall then be enclosed in one single package.

An email titled “*PROPOSAL FOR A NUMBER PORTABILITY CLEARINGHOUSE SERVICE*” containing both the technical proposal and commercial offer as separate attached files (protected or encrypted PDF).

The address for hard copy submission of offers is:

**ARKEP,
Str. Bedri Pejani nr. 23, 10000,
Prishtina, Republic of Kosovo.**

BOTH ATTACHED FILES SHOULD BE PASSWORD PROTECTED WITH DIFFERENT PASSWORDS AND THE PASSWORDS FOR EACH FILE SHOULD BE SENT IN ONE SEPARATE EMAIL.

Both emails should be sent to - npc@arkep-rks.org

COMPLETE PROPOSALS MUST BE RECEIVED BY NO LATER THAN 4:00PM KOSOVO TIME, ON THE RESPONSE DEADLINE DATE OF 05 July 2023. LATE RESPONSES OR SUBMISSIONS SHALL NOT BE ACCEPTED.

The contents of the Proposal will be incorporated into the contractual and authorization arrangements between the Service provider and the parties. ARKEP underlines the importance of receiving honest, true and full answers to the questions asked in the RFP.

Failure to comply with all of the above submission requirements (including packaging) may result in rejection or disqualification of the application.

11.2 Contact Details

All other correspondences or requests for clarification relating to this RFP (other than submission of Responses) may be forwarded in writing via email to ARKEP’s nominated email address - npc@arkep-rks.org

11.3 Register of Interested Persons

Persons interested in submitting proposals are advised to send an email to npc@arkep-rks.org to register their interest with ARKEP as soon as possible, and in any event, prior to **20 June 2023**.

The email should have as its subject “**REGISTRATION – NP REQUEST FOR PROPOSALS**” and should contain all of the following information:

Name of Interested Party (Company Name)
Name of Contact Person
Email address
Mailing address
Telephone number

NPWG will create and maintain a confidential register of all persons who have registered their interest, which will be used to advise of any relevant information relating to this RFP and the selection process, including responses to relevant questions and requests for clarification, and date and other changes to the process. The names of persons included in the register will not be disclosed to any person other than the members of the NPWG, who are employees of the authorized operators/ stakeholders themselves under a duty of confidentiality to ARKEP.

Failure to register will not disqualify an interested person from submitting a proposal in response to the RFP, however, NPWG only commits to provide updates and supplemental information to persons that have registered by the date set out above and will not be responsible for any deficiency in any proposal which occurs as a result of failure to receive information which would have been provided to registered persons.

11.4 Clarification, Questions and Additional Information

Persons requiring clarification or additional information regarding any matter involving this RFP or the process should forward them by email to ARKEP's nominated advisers using the contact details set out in 11.2 above, with the subject "**NPWG NP Administration Service RFP question**". Questions must include full contact details (mailing address, email address and telephone number) of the enquirer. Please indicate if the question is of a general nature or if it relates to a specific point in the RFP and if so which one.

Receipt of questions will be acknowledged, and questions answered, **via email** as soon as practicable.

Responses that NPWG determines to be of general interest to all prospective RFP Respondents will be distributed via email to all registered Interested Parties (concealing the identity of the questioner). If a question cannot be answered within five (5) working days of receipt or at the latest seven (7) days before the Submission Deadline, NPWG via its nominated advisers will inform the questioner.

Requests for further information or clarification will not be accepted after 20 June 2023.

11.5 Expenses

Any expenses and costs incurred by a respondent in responding and preparing to respond to this RFP is the sole responsibility of the respondent and the NPWG is under no liability whatsoever to compensate any respondent for any costs or expenses so incurred.

The NPWG is not bound to accept any of the proposals submitted.

11.6 Confidentiality

Each Respondent shall regard all information provided by NPWG to Respondents pursuant to their involvement in this RFP process as strictly confidential.

Respondents may also be required to sign a formal Agreement of Confidentiality (also referred to as a “Non-Disclosure Agreement”) prior to being invited to give a presentation or qualifying for further dialogue. If you are short-listed, a copy of the Agreement of Confidentiality will be sent to you. This document should be reviewed by your organisation and be signed prior to discussion with the NPWG.

Any material or information received from NPWG is considered NPWG’s property and must not be shared with or distributed to any third party without NPWG’s prior written consent.

NPWG reserves the right to have any proposal received, reviewed and evaluated by any person at the discretion of NPWG including non-allied and independent consultants retained by NPWG, now or in the future.

The submission provided by the Respondent will be shared with the NPWG participants who will be bound by confidentiality obligations.

11.7 Selection Procedure and Criteria

NPWG, will evaluate the proposals based upon the submission, and any specifically requested presentations only, and based on their compliance and satisfaction of the matters set out in this RFP. All aspects of the proposal will be taken into consideration, including the price and commercial terms and conditions, based on the following weightings:

NP Administration Service specifications, including technical and administrative features and capabilities – This criterion will focus, but is not limited to, consideration of information contained in Sections 1, 2,4, of the Proposal.	[40]%
Commercial proposal, including price and all terms and conditions – This criterion will focus, but is not limited to, consideration of information contained in Sections 5 and 7 of the Proposal.	[30]%

Respondent’s experience and expertise – This criterion will focus, but is not limited to, consideration of information contained in Section 6, of the Proposal.	[20]%
Implementation schedule and timeframes – This criterion will focus, but is not limited to, consideration of information contained in Section 3 of the Proposal.	[10]%

NPWG reserves the right to choose freely amongst Respondents, selecting any or none - or to use the offer as a basis for a further dialogue with any or all Respondents. Commencement of negotiations with any Respondent shall not be construed as a commitment by NPWG or the licensed operators/ stakeholder to enter any form of contract with the Respondent.

11.8 Time Schedule

11.8.1 Issue of RFP

This RFP will be issued by ARKEP on behalf of Operators on **05 June 2023**.

Only invited parties who submitted responses to ARKEP NP Administration Service Expression of Interest will be invited to participate in the tender process.

Before sending their proposals, the Respondents can make requests for further information or clarifications regarding the RFP, within 15 days after the RFP is published.

After the NPC selection, the deadline for any complaints is 5 days and the complaints shall be reviewed by ARKEP within 30 days.

11.8.2 Deadline for Submission of Proposals

COMPLETE PROPOSALS MUST BE RECEIVED BY NO LATER THAN 4:00 PM, KOSOVO TIME, ON THE RESPONSE DEADLINE DATE OF **05 July 2023 (Termed T0)**. LATE RESPONSES OR SUBMISSIONS SHALL NOT BE ACCEPTED.

11.8.3 Selection and Notification of Short-listed Respondents

The NPWG, will conduct a preliminary evaluation of all proposals received by the deadline time and date and will select a shortlist of those Respondents with whom NPWG wishes to engage further. NPWG expects to short-list no more than six (6) Respondents.

NPWG will advise all short-listed Respondents via email as soon as the short-list is selected, which email will also consider details regarding the further phases of the selection process. Short-listed Respondents will also be required at this stage to provide a copy of proposed draft terms and conditions for development, implementation and provision of the NP Administration Service, in the form of a draft contract.

Respondents not included in the short-list will also be notified at this time, though NPWG may decide (based on the outcome of the remainder of the selection process) to reconsider Respondents that are not shortlisted in the event that it is unable to finalise a selection of one of the short-listed Respondents.

NPWG expects to complete the short-list by **T0 + 3 weeks**.

11.8.4 Presentations by Short-listed Respondents

The short-listed Respondents shall be subject to further technical and commercial evaluation (and clarification if required) conducted by NPWG. This further evaluation may include the making of a presentation by each short-listed Respondent, as well as the NPWG making enquiries of references provided by the Respondent.

It is expected that presentations, if required will be held during the week commencing in **T0 + 4 weeks** in Kosovo.

NPWG reserves the right to operate a second shortlist phase, in which the NPWG may require to meet with the Respondents selected to attend to engage in more detailed technical, operational and commercial discussions. An agenda for the second short-list phase will be provided to the selected service providers ahead of the proposed meetings.

11.8.5 Selection of and Negotiation with Service Provider

Following the presentations and any meetings, NPWG, will conduct its final evaluation and select its preferred Service Provider. The selection shall at this stage remain subject to successful commercial negotiation of the terms and conditions of the development and implementation contract, and the NP Administration Service licence. The NP Administration Service should become available for acceptance testing by the licensed operators/ stakeholder as soon as possible and no later than **T0 + 7 Months**. From this date through to the public launch date of **T0 + 15 months**, the Service Provider should work closely with NPWG (via ARKEP nominated NP programme lead where necessary) to ensure full compliance is achieved.

12 Programme & Project Management

NPWG will work with the relevant members of the Service Providers project team on an as required basis. When necessary, members of the Service Providers project team will be

invited by the NP project team meetings to discuss the NP Administration Service and associated activities.

An overall NP Programme plan, covering all aspects of delivering the NP Administration Service, is being developed and will be made available to the successful Service Provider during the inaugural project meeting. The service provider will be expected to provide a specific sub-project plan outlining the timelines for the activities for which the service provider will be responsible.

The acquisition of the NP Administration Service forms one critical element of the overall NP Programme.

Respondents are advised of the following:

- i. This RFP does not constitute a contract between ARKEP, NPWG, the authorized operators/ stakeholders and any Respondent or the Service Provider;
- ii. NPWG reserves the right to request further or additional information or details as it may require from any Respondent, or all of them;
- iii. The timelines indicated in this RFP are not immutable and may be altered and amended solely at the discretion of ARKEP;
- iv. ARKEP following NPWG recommendations reserves the right to use any factor or combination of factors for determining the successful Service Provider. ARKEP's decision on the successful Service Provider is final.;
- v. The provision of a NP Administration Service is subject to negotiation between the authorized operators/ stakeholders and the selected Respondent of the detailed terms and conditions for the provision of the service, acceptance by the selected Respondent of the terms and condition of the Authorization and negotiation of supplemental contractual arrangements with the authorized operators/ stakeholders.
- vi. NPWG shall not be bound to accept the lowest bid, or any proposal submitted in response to this RFP and expressly reserves the right to reject any or all proposals submitted.

Appendix A - Definitions

“Accept Message” is a message from the Donor Operator in response to the Request to Port indicating that the Porting may proceed;

“Activation” means that the accepted Request to Port status has been acted upon by the Donor Operator and the Recipient Operator and the number is now recognised by all Operators as being active on the Recipient Operator’ Network;

“All Call Query” means the system for the setting up of calls on a network in which for every call the Operator’s ‘Routing’ database is interrogated during the call set-up process to determine the correct network designation for the particular number dialled;

“Application” means a software package which performs a set of routines required by the user;

“Application Programming Interface (API)” is an interface which a computer system provides to enable other computer programs to request services and/or to allow data to be exchanged between them;

“Authority of Electronic and Postal Communications (ARKEP)” means the national regulatory authority responsible for regulating electronic communications and postal services in Kosovo

“Broadcast” means the automatic transmission of routing information from the NP Administration Service to an Operator managed database;

“Browser” means an application which is designed to enable users to access systems across the Internet. Windows Internet Explorer is one such Browser application;

“Client” means an application provided by a Service Provider, which can be installed on hardware located in the user’s domain and under the control of the user, which will provide specific functionality;

“Communications” means data transfer/exchange between one computer system and another;

“Cooling Off” means the function or process as determined by ARKEP, which enables a ported Subscriber to return to the Donor Operator within a specified period after the port has been completed;

“Customisation” means work that is done to the standard application to ensure that it can fulfil the requirements of ARKEP and those of the Licensed operators/ stakeholders;

“Deferred Porting” means the capability of enabling a subscriber to define or set a Porting date at a point in the future;

“Dipping” means the retrieval of number routing details from a special database;

“Disaster Recovery” means the measures the Service Provider will take in circumstances where normal NP Administration Service infrastructure is damaged to the extent it is not possible to re-start operations to provide the required service within a time period that is acceptable to ARKEP;

“Donor Operator” means the Operator that is providing service for the Subscriber before Porting;

“Electronic Requests” means NP Processes using computer applications to inquire, request, acknowledge and activate the Porting processes;

“Electronic Numbering (ENUM)” refers to a system designed to enter ITU Recommendation E.164 telephone numbers which are used by public switched telephone networks into the Internet Domain Name System;

“Escrow” means the arrangement between ARKEP, the authorized operators/ stakeholders and the Service Provider whereby the software, source code and supporting material relating to the NP Administration Service and NP Central Database as agreed, is to be held by a trusted third party until the occurrence of a specified condition(s);

“Final Acceptance” means the point at which ARKEP and the authorized operators/ stakeholders have agreed with the Service Provider that the service has been supplied, delivered, and fully functional as agreed and free from faults;

“Firewall” means specialised communications equipment which is used to validate any attempt to access systems by users using communication links;

“First Stage” means the initial set of NP project activities carried out by the NP Administration Service project team;

“Fixed Operator” means an authorized operator which provides fixed services (including but not limited to voice services) in Kosovo;

“Fully Integrated” means all components of the NP Administration Service (software, hardware and communications) are working and subscribers using the system can access the system through designated entry points and enter/receive information in the specified manner;

“Hardware” means equipment selected, configured and used by the Service Provider, covering processing requirements and data storage;

“Inquiry” means the activity which is undertaken by a prospective Recipient Operator to ascertain if a number meets a given set of conditions which will either enable a Request to Port to be initiated or blocked;

“IVR” means Interactive Voice Response, an automated telephony solution capable of interacting with subscribers through the use of voice and DTMF keypad inputs;

“Law Enforcement Agency” means any department or organisation within the Ministry of National Security authorised under the laws of Kosovo to undertake law enforcement;

“Number portability clearinghouse (NPC) services provider” means the grantee or holder of an authorization issued by ARKEP for the provision of NP administration services;

“Authorized Operator/ provider” means an operator/provider who has been allocated numbering resources by ARKEP to provide an electronic communications service;

“LNP (Local Number Portability) Business Rules” – a document that sets out the rules and conditions which apply in respect of aspects of the order and provisioning process for number portability for fixed and mobile subscribers in Kosovo.

“Managed Services” means the provision of services to manage and operate the NP Administration Service (irrespective of location selected);

“Manual Requests” means NP Processes which cover the manual handling of actions replicating the electronic NP Processes where applicable;

“Mobile Operator” means a licensed operator/ service provider which provides mobile services (including but not limited to voice services) in Kosovo;

“NP Administration Service” means the provision of a service in Kosovo to enable the process of Porting of numbers between Operators, and the provision of routing information from a

reference database of all Ported numbers, and shall include the application, the database and the necessary hardware and communications equipment required to deliver the functionality deemed necessary for administrating the act of Number Portability;

“NP Nominated Lead” means the person designated by ARKEP to direct the NP Programme;

“NP Processes” means the actions to be undertaken by each Operator to ensure that the Subscriber receives an effective, efficient and seamless service when their subscriber number is ported from a Donor Operator to a Recipient Operator;

“NP Programme” means a defined set of time-lined activities from initial design through to final launch, which will deliver NP functionality for Kosovo;

“NP Service” means the service offered by each Operator to prospective subscribers to enable the subscriber to port their number across to a new network;

“Number Portability (NP)” means the ability for a subscriber to retain an existing telephone number when transferring services (Fixed or Mobile) from one Licensed operator/ stakeholder to another;

“Network” means the transmission system, including any apparatus, equipment or facility, used for the conveyance by use of electrical magnetic or electromagnetic energy of signals of any description by an Operator which provides electronic communications services;

“Non-Disclosure Agreement” (“NDA”) means an agreement to be entered into between ARKEP, the licensed operators/ stakeholders and the Service Provider in order to facilitate the sharing of confidential information between the parties to that agreement;

“Number Portability Working Group (NPWG)” means the joint TU/Industry group appointed by ARKEP to coordinate (subject to ARKEP’s direction) the development, implementation and launch of NP in Kosovo. The team comprises representatives of ARKEP and authorized operators/ stakeholders as determined by ARKEP;

“Numbering Plan” means the National Numbering Plan for Kosovo as published from time to time by ARKEP;

“Number repatriation” means the return of a number to the Original Number Range Holder when service is terminated on any other network to which the number has been ported;

“Off-net” means a call made on one Operator’s Network that needs to be terminated on the Network of another Operator;

“On-net” means a call made on an Operator’s Network that is terminated on the same Network;

“Onward Porting” means a Porting request where the subscriber requests to port to another Operator who is neither the current Recipient Operator nor previous Donor Operator within a time period from the completion of the previous Porting request;

“Operator” means a licensed party/ entity which provides fixed or mobile services in Kosovo;

“Operator Code” means the internationally recognised code given to each authorised telecommunications Operator;

“Original Number Range Holder” means the Operator who was originally granted a specific number range by ARKEP;

“Personal Identification Number (PIN)” means a secret numeric password shared between a user and a system that can be used to authenticate the user to the system;

“Porting” means the process comprising a request to a Donor Operator’s Network for approval to transfer a number from its Network to the Recipient Operator’s Network, the

subsequent receipt of an answer from the Donor Operator's Network, and informing all Operators that a number has been successfully transferred and is now active on the Recipient Operator's Network;

"Quarantine" means the withholding of a number from further use for a specified period of time after its use has been terminated;

"Recipient Network" means the Network providing service for the subscriber's number after Porting;

"Reference Database" means an electronic storage medium that contains information used in the execution of the NP Administration Service;

"Reject Message" is a message from the Donor Operator to the Recipient Operator in response to a Request to Port indicating that the Porting may not proceed;

"Request to Port" means the function initiated by the Recipient Operator to officially request that a Donor Operator transfer a number that is currently in service on the Donor Operator's Network;

"Respondent" means a person or organisation responding to this RFP;

"Review Meeting" means meetings held periodically between the representatives of the Service Provider, ARKEP and the NPWG/ authorized operators/ stakeholders to discuss matters related to the NP Administration Service;

"Routing" is the process of selecting paths in a network along which to send network traffic;

"Routing Change Information" means that information on the Routing for a particular number has been changed to reflect a different Operator Code due to the number having been Ported;

"Routing Databases" means the databases used by Operators to route calls to their current service Network. The "Master" database is maintained within the NP Administration Service and "Local" databases are located within each Operator's Network;

"Routing Information" means the specific data used for routing calls which describes which Network is providing service to a particular number;

"Secure Service" means a service which is fully protected from unauthorised person' access, configured so that the information stored is fully backed-up to a secure location separate from the main system;

"Service Level Agreement (SLA)" means an agreement between the Service Provider and authorized operators/ stakeholders, entered into in accordance with requirements determined by ARKEP, which covers the business and technical requirements placed upon the NP Administration Service;

"Service Provider" means the entity, selected pursuant to this RFP, which provides the NP Administration Service;

"Simple Object Access Protocol (SOAP)" is a standardised protocol to enable compatibility between different programs which allows data to be passed from one computer program to another allowing both programs to extract data in a predefined manner;

"Software" means computer applications supplied by the Service Provider to the licensed operators/ stakeholders which enables the NP Administration Service to be used;

"Subscriber" means a legal or natural person who acquires electronic communications services from an Operator; and

“Subscriber Identity Module (SIM)” is a small electronic card inserted into mobile phones which provides a unique ID to a phone such as the number and Operator Network.