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## **4.0 Scope of services**

### **4.1 Background**

Number portability service is a service which allows the end-users of telecommunication services to retain their current number (fixed & mobile) when the subscriber wishes to switch from one service provider to another. Having a solid number portability system will boost fair competition and will lead to improve in the quality of experience for end-users.

Moreover, ported numbers shall have equal access to all services as if they would have had a number that originally belonged to the network of the current service provider.

The current system in the Sultanate of Oman was launched in 2006. It uses the decentralized model where each operator has their own Number portability database, and each operator will need to send updates to all other operator Number portability databases.

On that account, Telecommunications Regulatory Authority (TRA Oman) requires the eligible party to submit the proposal on designing, implementing and commissioning an end to end Number Portability Centralized Clearinghouse solution at TRA. The project requires the Tenderer to design, develop, implementation, install and provide operations & maintenance of the system & to integrate the system with operators, and any existing system (if necessary) at TRA.

### **4.2 Project Objective**

- Ensuring that all service providers handle port requests according to the same procedure.
- Significantly reduce the time of porting.
- Tracking port request status, routing data and history.
- Real-time monitoring of porting activities.
- Smoothing integration with all service provider systems.
- Trouble-free porting of business accounts Mobile/Fixed.
- New unified and scalable system.

### **4.3 Administrative Features**

- System shall provide interface for configurable parameters.
- System shall provide comprehensive user management offering customizable roles and responsibilities based on individual profile and identity management.
- System shall keep track of all transaction done on the system for all user profiles.

### **4.4 Technical Features**

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- All solutions design and features shall be based on best practices.
  - System shall operate based on centralized database and clearing house.
  - System should support porting of fixed and mobile numbers.
  - System should support bulk porting of fixed and mobile numbers for business customers.
  - System should provide a unified platform for all operator in the country.
  - System shall support both synchronization and command level update with both push and pull mechanism i.e. the porting database can be sent to all concerned operators or it can be downloaded by them as desired by the concerned operators.
  - System should be design based on high performance –To meet bench marks (KPIs) as mandated by concerned authority.
  - System should be able to adapt business process mandated by TRA. For example:
    - Time to process porting request.
    - Reasons to reject a porting request.
    - Any other requirement directed by the TRA.
  - System shall be capable to support multiple vendor system.
  - Ability to integrate with operator's systems or databases to fetch and analyses data to facilitate the amounting of the system.
  - System shall have the capability to provide extensive and in-depth reports enabling TRA to visualize all porting requests.
  - System shall be scalable in future to offer the capability to add new operators.
  - System shall be able to analyses porting requests and flag operators who violates rules set by TRA
  - System shall have the capability to audit MNOs and MVNOs action for compliance through a dashboard that shows:
    - Time taken to process a porting request.
    - Number of reject request.
    - Reasons for rejection.
    - Other parameters requested by TRA.
  - System shall provide subscribers with a way to track their porting request online and interactive SMS.
  - System shall provide administrative controls allowing features to configure for supporting regulatory changes.
  - System shall be both horizontally and vertically scalable to any size.
  - System shall support UI for various devices and operating systems.
  - System shall be scalable to integrate with TRA NMS to fetch details on ported vanity numbers.
  - Integration support with other systems through application programming interface (API).
  - Integration support with MNOs and MVNOs systems through application programming interface (API).
  - System must provide open API's base Gateways for all integrations.
  - The system shall be programmable to extend functionality.
  - The software solution shall support unlimited scaling.

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- The system shall be flexible for any modification/features added in future.

#### **4.5 Infrastructure requirements**

- The Tenderer shall be able to provide an On-Premises solution.
- System shall be configured in high availability / failover mode.
- System shall have a primary and a disaster recovery (DR) site.
- For the purpose of this tender document, Tenderer shall assume all tasks to be performed on Turnkey basis.
- Demonstrate security of the system from various aspects.
- The Tenderer shall provide an estimation on resources required for the solution with quotation.
- Tenderer shall be responsible to assist TRA team in operating the entire system for at least one year and any extended period fees should be included.

#### **4.6 Security Requirements:**

##### **4.6.1 General Requirements**

- The system is to be developed in accordance with Maturity Level 3 in Government Application and E-Service Security Architecture Framework.
- Vendor is required to provide a secure user authentication mechanism.
- Vendor is required to disclose tools and software used in software development environment including all libraries, frameworks, components whether free, open sourced, commercial, closed source.
- Vendor will take responsibility for protecting organization data deemed necessary to fulfil system development requirements from an authorized use, access, disclosure, alteration or destruction.
- Vendor shall ensure a secure integration with operator's systems or databases and any other system specified by TRA.
- Vendor shall ensure system compliance with Oman Royal Decree 6/2021 issuing Personal Data Protection Law
- Remote Access to system is prohibited from outside the sultanate of Oman.
- System application must use secure protocols (https)
- Vendor is required to protect critical system components (DB) and Encrypt all critical systems' data-in-transit and data-at-rest

##### **4.6.2 Security Review and Testing**

- a) Vendor shall perform security analysis and testing for system and shall provide the verification findings to TRA prior to any release.

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- b) TRA has the right to perform software review for security vulnerabilities at any time within 90 days of delivery. The review may include a combination of vulnerability scanning, penetration testing, static analysis of the source code, and expert code review.
  - c) Vendor shall provide support for software review and shall fix all security vulnerability findings.

#### **4.6.3 Security acceptance and maintenance**

- a) The system shall not be considered accepted until firm guarantees from vendor that the system is safe and free of security vulnerabilities for TRA and concerned parties.
- b) During support and maintenance contract, vendor shall ensure security of system and resolve security issues within a reasonable timeframe as per signed SLA.

#### **4.6.4 Additional Security Requirements**

- a) All licenses to be registered under TRA and shall be transferred to TRA.
- b) Software source code with clear comments describing the codes.
- c) Any other documents or licenses that are relevant to the operation and development of the system and could be needed in the future, given that it is within the scope of services defined herein section 4.0.

### **4.7 Transfer of Technology (ToT)**

- Tenderer shall provide detailed ToT roadmap along with requirements from TRA.
- Tenderer shall provide knowledge transfer to TRA team, in terms of providing training, materials, etc.
- Tenderer shall ensure that all software source codes along with customizations done are provided to TRA for any further developments to be done by TRA.
- Software source code and training shall be extended to TRA team during and upon completion of the deployment and development.

### **4.8 Other requirements**

- Provide support in regulatory and policy framework based on implementation and experience in other countries.
- System conformity to ITU-Q Recommendations and other relevant resolutions from ITU or other organizations.
- Provide support in various activities related to awareness of stakeholders.
- Provide support and training to TRA and stakeholders.

- The project period shall be 8 months including 6 months Implementation period for the system and Integration, the Tenderer is requested to provide the timeline accordingly in response to this tender document.
- The development of system shall be on TRA premises in primary and DR.
- Scalable and modular architecture

#### 4.9 For All Operators in the Sultanate of Oman

- The solution should target all telecommunication companies in the Sultanate of Oman.
- The solution should be able to orchestrate all the traffic throughout all the operators and provide a single platform for TRA to implement policies and business process changes.
- The solution should also provide a central reporting for all operation of the system.

#### 4.10 TRA Responsibility

- Regulatory framework and related legal cover for CNP development & operations.
- Liaison with all stakeholders.
- TRA shall be solely responsible for enforcements of all system related activities by stakeholders.
- Provisioning of timely data dumps from the stakeholders.
- Secure connectivity between the datacenter site and the stakeholders.
- Secure Connectivity for the system.
- Primary & DR datacenter site for the system.
- Any other support desired by the Tenderer shall be explicitly listed in the response of this tender document. TRA keeps the right to reject the request without assigning any reason.

#### 4.11 Deliverables

Deliverable Name	Description
Inception report	The high-level design should be part of the tender submission, while the report shall provide the detailed methodology to conduct the solution design, implementation, information requirements, regulatory and policy framework based on experiences in other countries, counterpart support, meeting schedules, timelines for submission of deliverables etc. within two (2) weeks of the commencement date. The report should also refer to the current system analysis and migration requirements.

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<b>Solution design and implementation</b>	Design & implementation of solution and ensure all requirements mentioned in tender document are taken into consideration and implemented
<b>Integration with mobile network operators (MNO) &amp; Mobile virtual network operator MVNO, other systems</b>	Full Integration with MNO systems and database, and any other system specified by TRA
<b>System Testing</b>	All listed functions and requirement are working efficiently and as required by TRA
<b>Final version of system</b>	All system requirements are implemented as per TRA, completion of testing phase and knowledge transfer
<b>Workshop, Campaign and awareness for stakeholders</b>	Assist TRA in workshops with stakeholders and Assist in awareness sessions for public