

August 30,2005

**The Secretary,
Telecom Regulatory Authority of India,
A2/14, Safdarjung Enclave,
New Delhi**

**Sub: Response of Tata Teleservices on Consultation Paper No. 7/2005 on
Mobile Number Portability**

Dear Sir,

We have gone through the Consultation Paper floated by TRAI on Mobile Number Portability. The idea of Mobile Number Portability is a good concept and we appreciate the efforts of the Authority in this direction.

As mentioned in the response to the Consultation Paper, we feel that Mobile Number Portability should be implemented using the central server topology and not using interim technology solutions like call forwarding etc. We understand that TRAI is already working on establishment of Interconnect Exchange; we strongly feel that Number Portability must be implemented as a subset of Interconnect Exchange.

We feel the fundamental reason of introducing Number Portability in our country is couple of years away due to the following reasons:

- It will entail additional investments by all operators to augment networks, create database, implement and sustain new routing and switching arrangements.
- Extra cost to be involved while porting CDMA and GSM handsets.
- Many technical, commercial and administrative issues involved requiring changes in the Fundamental Plan, Licensing regime etc.
- Objective of achieving lower tariff and introducing Mobile Number Portability may not be possible.

Keeping the above in mind we feel that Mobile Number Portability should be considered simultaneously with the implementation of Interconnect Exchange.

Thanking you,

Yours sincerely,
for **Tata Teleservices Limited**

Rakesh Mehrotra
Chief Officer – Corporate Regulatory

Encl.: As above



RESPONSE TO CONSULTATION PAPER
ON MOBILE NUMBER PORTABILITY



TATA TELESERVICES LIMITED

AUGUST 30, 2005

Issues for Consultation

Issue 1

What is the anticipated impact of number portability on customer satisfaction and increased competition between services and operators?

Response

Introduction of MNP will help reduce the exit barrier for a customer when he decides to churn out of a particular network as he can enjoy the services and call charges of the other operator without changing his existing number. This will motivate the customer to change from one service provider to another depending on the service level and call rates offered by them.

As has been indicated in the Consultation paper of TRAI, the net benefit of number portability has been accepted by most (Australia, Hong Kong, Netherlands, UK), with or without a Cost Benefit Analysis by the regulator.

MNP is will certainly increase competition among operators and will motivate the service providers to increase the quality of service with the objective of retaining their existing subscribers and discouraging them from moving into other network. However, with the introduction of MNP, there could be another round of price war, which could result in further reduction in call charges.

- Using the MNP, the GSM customers can change their services to CDMA, while retaining their numbers. However, since subscriber have to change their handset, it could act, as a barrier to portability and CDMA operators might not be able to derive the full benefit.
- Tata Teleservices, feels that there will be significant positive impact if services are flawless & efficient. However if there are issues/defects in service, there will be major dissatisfaction.
- Handset portability (GSM<-->CDMA) needs to be addressed.
- Regulator needs to ensure that operators do not create artificial barriers for success of MNP.



Issue 2

The following technical options have been discussed in the consultation paper. Please indicate your preference with reasons:

All-Call-Query

- b. Query-On-Release**
- c. Onward Routing (Call Forwarding)**
- d. Call-Drop-Back**
- e. Any other solution**

Response

Selection of technical option will primarily depend on cost allocation rules and the structure of the architecture. However considering the trends in Global market and case studies attached in consultation paper following approach is recommended by Tata Teleservices.

Off Switch Solution

Tata Teleservices suggest to Opt for off switch solution: -

The flexibility an off-switch solution offers gives it clear operational advantages over on-switch solutions. The cost of implementing such a system could be similar to that of interim solutions. The cost of these systems need only be partially attributed to the number portability functionality of the network if the IN system is already used to offer other supplementary services and increased network flexibility. Detailed cost modeling of on-switch and off-switch solutions for a typical network has shown that, whilst on-switch solutions are cheap to implement, the penalties that are incurred after several years of operation due to the inefficient usage of transmission and switching equipment within the network become greater than the solution development and implementation costs. Hence it is recommended that the long-term development strategy of their number portability programme should be carefully implemented.



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Issue 3

In the past, some countries have followed the approach of implementation of a short-term solution, with parallel planning for a long-term solution. Several other countries have opted directly for a long-term solution. The issues associated with either approach are discussed in this paper. Please give your opinion, with reasons, on the path India should adopt.

Response

As has been discussed, the short-term solution appears to be the easiest, can be implemented fast, with minimum investments involved. However, India is a large market with as many as 11 operators across circles, handling a customer base of 57 Million, which will only grow, in the near future. Hence, it is important that, we develop a long-term solution, in a systematic way. An interim short-term solution (and a subsequent transition to long term solution) may create confusion amongst customers, as well as operators, who may have to handle complex operational issues and increased costs, which may not necessarily be passed on to the customers.

Tata Teleservices also recommends that implementation strategy is to implement MNP in line with national telecom policy 2005 and India one Policy. The approach has to be long-term solution. Hence a long-term plan with one time approach is suggested. (This is also discussed in answer to Question no 2 & 3).



Issue 4

In case of a centralized database approach, who should be responsible for the setup, ownership, administration, and management of such a database? Should the administration and operation of a centralized database be assigned to a third party duly licensed by the licensor as another service provider (OSP) on the lines of a clearing-house, or should some other approach be adopted?

Response

It should be an independent party to handle the central MNP database. In order to achieve service excellence and building competitive environment multiple licenses can be issued. The MNP service providers need to have peering relationship with each other. The proposal should be appropriate to market circumstances. Instead, there is a disconnect between the deterministic implementation of the migration path between different technical solutions to number portability.

The set-up cost of a central number database (CND) and the annual maintenance cost of this database needs to be worked out. Backing-up this database to provide network resilience would mean almost doubling these costs.

Network operators would incur costs to use the CND. The costs to each operator would include those of modifying many of its operational support systems and installing a secure data connection to send and receive data. This set up will have additional cost.

Therefore the overall cost of the CND, including the costs incurred by other network operators, which will be significantly in high.



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Issue 5

How should the database updates between different operators be synchronized? Where could the central database be located?

Response

Tata Teleservices recommends that the Circle level database in circle telecom head quarter (i.e. in the proximity of L1 tax) can be recommended. Operators will take signaling and provisioning connectivity separately from the MNP service provider owning the database.

Usually there is a well-defined process and sequence of steps for porting activities. The donor interacts with recipient operator thru B2B gateway. The central database is updated at intermediate milestones. In such a scenario there will be clear rules on who updates the database at which point of the process.

The level of centralization can be circle as long as the tariff within a circle is different from the tariff across circles. But the location and design should be able to support centralization at national level in future.

Issue 6

What should be the level of centralization (metro, circle, national) for a centralized database? Should this be a permanent arrangement, or be subject to later revision?

Response

Circle level centralization of database will lead to simplicity of implementation and future proof. Nation level centralization will lead to higher dimensioning requirement resulting in multiple databases at a later stage. Nation level centralization will be prone to factors like single point failure, vulnerability of information leak out. However centralized data base solution is final solution if all concerns are addressed.



Issue 7

How should NLDOs and ILDOs handle the routing of calls to support number portability?

Response

1st leg of call will land on the Mobile operator facility that has been assigned for the dialed number range (e.g. If dialed number is 9192abcxxxxx, or 92abcxxxxx, the call will land at TTL circle gateway MSC). If Mobile operator's HLR has tag for MNP then it will query to the connected MNP service provider's database. The MNP server should return with a TLDN (in case of CDMA) or MSRN (in case of GSM), which has preamble digits as CAC (Carrier access Code) of the currently served mobile operator. MSC can route this TLDN/MSRN (14 digits i.e. 4 digit CAC+10digit MSISDN/MDN) on NLD carrier. The serving operator will now remove the CAC and deliver it as a standard MT call.

Issue 8

Are the existing interconnection arrangements (such as signaling) between mobile-to-mobile, mobile-to-fixed networks sufficient to achieve number portability, or are any changes required?

Response

Signaling Requirements

In addition to the MSC switching software modifications, wireless providers have to ensure that a routing indicator in the called party address of the Service Connection Control Part (SCCP) portion of the TCAP message. Routing to the MNPDB can either be done using Destination Point Code/Subsystem Number. On the other end of the process from MNP data access, wireless providers must also be able to "upload" information on their own-ported numbers to the appropriate CENTRAL DATABASE MANAGEMENT for access by other providers.

A service order administration (SOA) system will provide the necessary functionality to interface with the wireless provider's order and provisioning systems to update the



CENTRAL DATABASE MANAGEMENT for access by all other carriers, wireless and wire line.

The SOA's primary functions may include the following: subscription audit request/management; data administration; data transfer to the CENTRAL DATABASE MANAGMENT; report generation; bulk file parse and upload; subscription tracking; legacy order entry interface, and logging. Depending on an individual service provider's requirements, the SOA may interface with multiple CENTRAL DATABASE MANAGMENT s to allow for nationwide Number Portability. The carrier-to-SOA connection may be custom-designed to interface with existing carrier order entry systems. However, the SOA interface to the CENTRAL DATABASE MANAGMENT is a common management information service element (CMISE), providing subscription management functions as well as logging, error reporting, and alarm functions Other issues for consideration are: -

CENTRAL DATABASE MANAGMENT certification;

- Intercompany testing;
- MIN administration;
- Network and OSS integration;
- Directory listings;
- Trouble shooting;
- Interconnection agreements; Cost recovery and bill reconciliation and Intercarrier Communications pre-porting process.

Requirements on Signaling for inter carrier communication

Call Completion in a Portable Environment involves delivering calls to ported telephone numbers. Wireless carriers should be capable of launching Number Portability Request (NPREQ) messages and equipped with switch trigger capabilities. The MSC must also have the capability to launch queries using Global Title data, i.e. launching queries to an Alias Point Code (APC) and Translation Type (TT) rather than routing on Destination Point Code and Subsystem Number (DPC/SSN).

Issue 9

Are there any technical issues in the portability of services such as SMS, data, voicemail, or fax?

Response

There are no issues pertaining to services like SMS /DATA / Voice Mail /FAX – since MNP implementation will most definitely involve extension of the functionality of the Network Elements facilitating these services.



Mobile Number Portability cannot be offered to a subscriber as a stand-alone service. Mobile Number Portability is applicable to all teleservices (e.g. SMS, voice, fax) and bearer services (e.g. data), except for (emergency call). The implementation of MNP shall be flexible enough to apply to each MSISDN of a subscriber separately. Where the MSISDNs used in the donor network are ported to different recipient networks then a new IMSI (and SIM/USIM) will be required for each recipient network. The basic and supplementary services provisioned in the recipient network shall not be dependent on those that were provisioned in the donor network.

Issue 10

What problems do you foresee with the current National Numbering Plan in implementing number portability that may necessitate the modification of the existing National Numbering Plan?

Response

For the current and projected mobile user subscriber base, the national numbering plan is sufficient. With MNP implementation [based on method of implementation] operators will have to share a common pool of special numbers to uniquely identify “ported numbers”. The unique numbers/number series would help the originating network to route the call to the correct database [in case of distributed databases] and further to the correct recipient network.

The Regulator may allocate the special number series and control its distribution across service providers. An addition to the present national numbering plan is envisaged with MNP implementation, however a modification may not be required. Call Center must be able to figure out from where customer is calling & whether he is in roaming or local. Call routing to desired service provider call center implementation.

Issue 11

Should number portability related charges be regulated? If not, then what measures will ensure that the portability charges are not set such as to discourage portability?

Response

In order to translate the benefits of MNP to the consumer it has to ensure that the charges associated with number portability are minimum and it should be regulated.



Issue 12

What measures will ensure tariff transparency?

Response

Standardized tariff comparison table should be made available. Customer Communications, Voluntary / Proactive Information & education will ensure transparency. It is assumed that any customer who ports his number to any other service provider has studied the tariff plans of the recipient network before porting. Hence, no special measures need to be taken other than the existing method of publishing the call charges, etc – Web Site, Press, Leaflets, Posters, etc.

Issue 13

Considering that the Indian market is a growing market and number portability offers the possibility of attracting customers by an efficient operator, should it be mandated that the cost of the number portability should be absorbed by recipient network?

Response

The cost of portability should be absorbed by recipient network however there was another view that this should be charged as one time cost of an additional services.

Issue 14

Please share any additional information that you might have about number portability implementations in countries and jurisdictions around the world, and what we might learn from these experiences.

Response

While number portability was announced in USA, it was a daily headline item & all operators had a fear of mass exodus of their customers. However nothing like this happened.

However no example of MNP working across different technologies is available in market. The standards, procedures, parameter values are different across technologies. This implies we need to have common procedure for MNP database query before going for MNP across technologies.

Issue 15

Give your comments, with reasons, as to when number portability should be introduced in India?

Response

Given the advantage of MNP, it is recommended that implementation of MNP should be at the earliest, and is in agreement with implementation by March '06, considering the urgency of growth and complexities involved in developing policies, databases, charges, complaint redressal etc

Issue 16

Should MNP be implemented progressively by service area or directly across the nation at one time?

Response

With a proper long-term solution in place, Mobile Number Portability needs to be implemented directly across the nation at one time. A progressive rollout by service areas may not, at a time when our subscribers are not equally spread out across all circles.

Issue 17

What will be the effect, if any, on the different aspects of implementation if phased rollout is adopted?

Response

Since Tata Teleservices recommended a long-term, one-time off switch solution with centralized database, hence any interim or phased solution is not discussed in the response.
