

TVR/VEL/011
26 February 2010

The Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
Next to Zakir Hussain College
New Delhi 110002

Dear Sirs,

Efficient Utilization of Numbering Resources

At the outset, we would like to laud the Authority for initiating this important consultation on the efficient utilization of numbering resources.

Numbers are a limited resource and need to be utilized most efficiently and effectively to meet the growth requirements of the industry.

1. We believe that there is vast scope for improvement in the efficient utilization of numbering resources, even within the existing 10-digit numbering framework. With some minor adjustments, the growth requirement of subscribers can be met adequately and efficiently within the existing frame work. There is thus no need or justification to move to an 11-digit numbering plan.
2. There adjustments may include, inter alia,
 - Freeing up Levels 2, 3, 4, 5, 6 and 7 presently allocated to fixed line services and instead assigning them to mobile services. There is no logic or justification in reserving 6 billion numbers for fixed line services which have only 37 million subscribers, i.e. a utilization factor of less than 1%!!!
 - Doing away with exclusive sub levels for some mobile operators. Exclusive sub-levels would neither be relevant nor justified in a post MNP scenario. Further, in addition to improving the efficiency of utilization of numbering resources, this would also remove a significant competitive distortion between operators.
3. Pre-fixing '0' for accessing intra services mobile from fixed would entail larger depth of analysis and consequent enhancements in the network that may not be desirable. It would also be an added and unnecessary inconvenience to subscribers
4. Move to an 11-digit numbering scheme (which not being necessary or justified) would also create several complications, impose significant adjustments and disruptions that would adversely impact both the consumers and the industry. Some of these include:
 - 500 million+ subscriber will have to change their numbers
 - SIM Cards would have to be reconfigured, modified or replaced
 - All address book entries will have to be manually modified
 - There will be issues related to SMS delivery and charging
 - Handsets capable of displaying 10-digit CLI (and there are a huge number of such handsets in the market)will start displaying erroneous data

- Huge impact on IT systems
 - Impact on online CRM activities
 - Impact on banking applications, NDNC database, VAS applications, etc
5. The present criteria of allocation of numbers after 80% utilization to fixed & after 60% utilization to mobile, may be allowed to continue.
 6. There is no need for filing a numbering return with the Numbering Plan Administrator, as this information is already being provided to the licensor in a prescribed format.
 7. Given the high level of duties and levies imposed on the sector, it would most unjust to charge for numbering resources also. This would unfairly penalize the low-end and marginal users as operators would be forced to pass through to them the same fixed fee for their number as would be passed through for a high end user. This may act as a deterrent to take up services by consumers, especially in the rural areas.
 8. An administrative price should be applied only in cases where there is a genuine scarcity and not when the scarcity has been created through inefficient allocations. Further, if at all a pricing /charging regime is considered, it will entail concomitant changes in the regulatory regime, such as introduction of number trading, etc.

Our detailed submissions in this regards are enclosed as [Annexure-1](#).

We hope that our submissions will merit the kind consideration and support of the Authority.

Kind regards,

Sincerely yours,

T. V. Ramachandran
Resident Director
Regulatory Affairs & Government Relations

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Vodafone Response to Specific Queries in the Consultation

Q1. Do you believe that 10 digit numbering scheme should be continued? If yes, then what method(s) do you suggest to make adequate resources available for next five years i.e. up to December 2014 and beyond?

- a. We believe that the 10 digit numbering scheme should be continued as it is adequate and sufficient to meet the demands of telecom growth within the country for quite some time in the future.
- b. As highlighted by the Authority in its Consultation Paper, there are several numbering Levels (2, 3, 4, 5, 6 & 7) that are allocated for fixed line services. In fact, today nearly 6 billion numbers are reserved for fixed line services, whereas the actual fixed line subscriber base in our country is only 37 million, i.e. a utilization factor of less than 1%!!! Further, there are clear indications that a large number of fixed subscribers are surrendering their fixed line connections and switching to mobile services, while new subscribers are exclusively opting for mobile only services.
- c. In contrast, mobile services, with more than 525 million connections, which are growing at the rate of around 16-17 million connections every month, have only been allocated the Levels "9", "8" and "7". The number crunch being faced or likely to be faced shortly would thus be almost entirely on account of the rapid growth of mobile connections.
- d. In view of the above, the allocation of numbering levels under the present arrangement / scheme / frame work is highly inefficient. There is clearly a huge demand for more numbers in the mobile segment with a correspondingly much smaller demand and need in the fixed line segment.
- e. Our key submission to the Authority would be to undertake a reorganization of the numbering allocations to achieve a more efficient utilization of the numbering resources.
- f. We believe that the shortage of numbers in the mobile segment can be easily addressed by freeing up the numbering resources that have hitherto been blocked for the fixed line segment and that are in any

case unlikely to be fully utilized and reallocating them to the mobile segment that is witnessing higher demand and growth.

- g. We believe that it would be possible to free up the Levels "3" "5", "7" and "8" (hitherto allocated to fixed services) completely with very minor readjustments. This would release 4 billion new numbers into the system and be sufficient to cater to the numbering needs of at least 2.4 billion connections (@ 60% utilization) in the country for quite some time in the future.
- h. There is also a very strong need to realign current allocations within the mobile segment. At present, some sub-level allocations have been made exclusively to some operators ("92", "93" and "94").
- i. While this exclusivity in sub-level allocations may have made some sense in a pre-MNP scenario, (as the operator could be distinguished by the sub-level), in a post-MNP environment, the operator cannot in any case be identified by the number. Given the imminent introduction /implementation of MNP in the country, we believe that exclusive allocations should be done away with.
- j. This is necessary, not only in order to evolve to a common non-discriminatory approach but also from the perspective of efficient utilization of resources as it would release tens of millions of numbers into the system. Further, this will also remove a significant competitive distortion between operators.

Q2. Comment on the advantages and disadvantages of accessing intra service mobile from the fixed line by dialing '0' for generating number resource for mobile services?

- a. Zero dialing from a fixed network has, by convention, been an indication of a long distance call, on account of the network architecture defined by the SDCA based linked numbering scheme.
- b. However, since for mobile services, the circle (service area) is a local area dialing, a '0' to access a mobile number from a fixed number could create complications [which fixed line operators would be best placed to highlight]. However, it is relevant to submit that such a change in the dialing could entail larger depth of analysis and consequent enhancements in the network.
- c. It would also be an added and unnecessary inconvenience to subscribers.

Q3. Do you believe that the only solution to the number resource problem is to migrate to an 11 digit numbering scheme for mobile and retaining 10 digits numbering scheme for fixed line? What kind of problems do you foresee in having a mixed numbering scheme?

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Q4. If your preference is 11 digit numbering scheme for mobile services then what comment on the advantages and disadvantages of such a scheme.

- a. No, we do not believe that only the only solution to the number resource problem is to migrate to an 11-digit numbering scheme.
- b. As pointed out above, almost the entire problem emanates from the fact that a huge part of the numbering resource allocation has been blocked for fixed services, which, on account of the slow/tapering growth of fixed services, are grossly under-utilized. A little restructuring of these allocations would solve the shortage crunch significantly with modest costs and minimal disruptions.
- c. Thus, given that a much lower cost solution is easily available, we strongly feel that there is no justification or need at this juncture, to migrate to an 11-digit numbering scheme. Migration to an 11-digit numbering scheme would not only entail large scale modifications to the existing networks at significant costs but also cause large scale disruption in the sector. This would neither be beneficial for the customer nor the industry as a whole since it would create numerous complications as also require large scale readjustments that would seriously affect customer service experience.
- d. With some minor adjustments in the fixed line numbering scheme, the 10-digit numbering system can be continued and an additional capacity of 4 billion [with a usable capacity of 2.4 billion at 60% utilization] new mobile numbers can be released into the system.
- e. We have detailed the many disadvantages of such a scheme and the resultant implications of such a shift in the attached Annexure-1A.
- f. It is evident from the said Annexure that there are several and significant disadvantages in migrating to an 11-digit numbering scheme while there are several advantages that can be gained far more easily and at a lower cost by making minor adjustments within the existing framework.

Q5. Comment on advantages and disadvantages of migrating to integrated service area based scheme for fixed and mobile. If this scheme is adopted what should be the time frame for migration?

- a. As already submitted in pre-paras, there is vast scope for improvement in efficient utilization of numbering resources even within the existing framework.
- b. To address the current /imminent constraints, we support the freeing of grossly under-utilized fixed lines levels for use by mobile services. This will address the growth requirements of the industry for many years to come.
- c. Any disruption in numbering framework at this stage is neither necessary nor desirable.

Q6. Do the present criteria for allocation of the numbers ensure efficient utilization of numbering resources or would you suggest some other criteria?

- a. The present criteria of allocation of numbers after 80% utilization for fixed line and 60% utilization for mobile numbers is adequate and can easily be continued in the future.
- b. Further, our submission/proposal of making additional number series available to mobile would relieve the artificial scarcity and therefore remove the need for any additional measures to encourage more efficient utilization of numbers.

Q7. With reference to para 3.3.1, comment on the need to file a numbering return to the numbering plan administrator for monitoring and ensuring efficient utilization of the numbers?

- a. Mandating the filing of a new numbering return to the Numbering Plan Administrator would not be necessary since we are already submitting this to the Licensor in a prescribed format. This format /filing adequately captures the requisite information on utilization of existing allocated resources.
- b. Further, in the MNP scenario, information on ported numbers would be available with the Mobile Number Portability Operators as well.

- c. Also, a three year accurate forecast as required in the format suggested by the Authority, would be difficult to achieve.

Q8. Give your views on pricing of numbering resources? If pricing is implemented, what should be the method adopted for such pricing.

- a. Firstly, we must submit that the excessively high level of fees, charges and taxes imposed on the Indian mobile industry are amongst the highest in the world. Given the high level of duties and levies imposed on the sector, it would most unjust to charge for numbering resources also.
- b. Charging for numbering resources would also further reduce the surplus available with operators to rollout and expand their services and thus have a constraining effect on rural penetration. The opportunity cost of this delayed rollout is borne by the economy and the consumers as they are not able to reap the benefits of the multiplier effect of mobile penetration on economic growth and the overall improvement in productivity, quality of life, etc.
- c. It may also be appreciated that given that there are 32 million taxpayers but over 500 million mobile subscribers, pricing for numbering resources would effectively be a severe tax burden on low-end and marginal users. These users would be unfairly penalized as operators would be forced to pass through to them the same fixed fee for their number as would be passed through for a high end user. This may act as a deterrent to take up services by consumers, especially in the rural areas.
- d. We believe that it would not be appropriate to consider imposing additional fees and charges without reviewing the overall burden of current fees, charges and taxes on the industry on consumers and on economic growth.
- e. We would also like to submit that pricing of numbers in order to encourage efficient utilization is not necessarily the most optimal solution on account of various factors. Any inefficiency that presently exists is primarily on account of historical reasons. As already elaborated, a large part of the shortage of numbers is on account of the grossly large allocations for fixed services, where the demand is a fraction of the allocations (6 billion numbers reserved for 37 million fixed connections).
- f. Any administrative pricing should only be applied in cases of genuine scarcity where that scarcity cannot be relieved through other measures (not cases where an artificial scarcity has been created by inefficient allocations As submitted by us above, if the existing allocations for fixed services are freed up for mobile [or for integrated use], there will be no concerns on scarcity for many years to come.

- g. We also feel it necessary to highlight that introduction of any new charging structure can become a serious disincentive for the industry through imposing unintended consequences upon the industry.
- h. It is critical to note that the charges proposed would be of a fundamentally different nature than current regulatory fees and charges which are paid on a revenue share basis. If fees were charged on a per number basis or a per active number basis, then this may disincentivise operators from connecting customers who generate lower revenues which could adversely impact rural rollout where costs are already higher.
- i. The average industry ARPU (GSM + CDMA) calculated from the TRAI Performance Indicator Report for September 2009 is Rs.148, down from Rs.164 in June 2009. The incremental ARPU of a new subscriber joining the network is of course substantially lower than this, especially in circles with lower levels of income and economic development. Imposing any flat per number or per subscriber fees in the context of such low ARPUs and even lower incremental ARPUs could therefore act as a significant disincentive to serve new customers.
- j. Imposing numbering fees is therefore unlikely to be consistent with the objective of increasing India's tele-density. Further, it is also unnecessary, as other means are available to ensure efficiency in numbering.
- k. Introduction of a new levy of this nature would also require other concomitant significant changes to the regulatory regime surrounding numbering – especially “number trading”. That is, once operators are charged for use of the resources which have been allocated under a historic allocation policy, they should be free to sell the rights to numbers to each other as well. Otherwise efficient utilization would not be encouraged, and operators would be penalized for the change in policy.

Q9. If pricing is implemented should it be for all resources held by the service providers or only for future allocations?

- i. We sincerely submit that there should not be any levy on allocation of numbering resources, since operators are already paying multiple levies and taxes to the government, and additional care should be taken before imposing any new system of fees and charges based on flat fees, as this would have significant negative implications as outlined above.

DISADVANTAGES OF AN 11-DIGIT NUMBERING SCHEME

There is no compelling need at this juncture for contemplating a shift to an 11-digit numbering plan. This will create enormous problems – for both operators and customers.

For one, such a change would be extremely consumer unfriendly as it involves a wholesale change of all existing mobile numbers. Then, there would be a greater impact on the ease of dialing.

Besides, there would be a need to upgrade all the operations and billing support systems like provisioning, mediation and CRM to adapt to the new numbering scheme. Again, the processing capacity of the billing servers will get impacted with this change. There will be significant time and cost implications for upgrades of systems and development of mediation / billing application.

Services / Application Eco-system: All the applications including banking, railway ticketing, airline booking and others are currently configured and designed for fixed 10-digit numbers. With a shift to 11digit scheme, all these applications / services need to be adapted / re-developed to accept 11 digits.

The shift to an 11-digit numbering scheme would be fraught with many problems for the following reasons:

- i. At present, there are more than 500 million mobile subscribers in the country. It does not make sense to disturb this huge based because all the mobile numbers would have to be changed to '11' digits.
- ii. The inconvenience caused to these subscribers will increase further as all the SIM cards for these subscribers would have to be reconfigured, modified or replaced. The time and effort for this would be humongous, not to speak of the cost and difficulties faced by customers. There will be a flood of complaints that may become difficult to manage.
- iii. Mobile numbers are today stored in the handset's phone book. In case the number changes, each and every entry in the phone book will have to be manually modified. There is no way in which a

subscriber's phone book can be automatically modified even for a simple change like prefixing one digit. Hence the shift to 11-digits will further increase the inconvenience to hundreds of millions of mobile subscribers.

- iv. A shift to 11-digit numbering plan may cause concerns regarding submission and hence charging of SMS. There may emerge several cases of subscribers trying to send SMS to older numbers. Keeping in mind the subscriber base of 500 plus million, the same may lead to customer dissatisfaction both from the point of view of charging as well as accuracy of delivery.
- v. A large number of Caller Line Identification (CLI) display devices in India are capable of displaying only 10 digits CLI and the same will start displaying erroneous data if there is a shift to an 11-digit numbering plan.
- vi. Shift to 11-digit mobile numbering scheme will also necessitate an upgrade of equipment and systems pertaining to security and Lawful Interception.
- vii. There will also be many technical issues in migrating to 11-digit numbering scheme:
 - 11-digit scheme will have huge impact on the telecom systems in terms of depth of analysis, database changes, processor load and memory utilization.
 - Due to the increased depth of digit analysis, the processor load of IN / HLR / MSC-VLRs / SMSC will increase, thereby reducing the capacity of nodes. The same may result in the increase in the number of nodes in the network.
 - All the networks will have to be upgraded to support the new numbering scheme. This would involve very high investments to upgrade/enhance the current systems. Moreover, an activity of this scale would take at least 9 to 12 months to complete.
- viii. Given the limitation of 15 digit in 3GPP, the call routing scenarios in case of MNP will need to be examined and introduction of a 11-digit numbering scheme may hinder the implementation of MNP.
- ix. Service providers have several roaming agreements with operators all across the world. These roaming agreements are governed by IR21 Regulation of GSMA, wherein the length of numbers is declared as 10. In case now these have to be made as 11 digits, there will be a need to amend and test all the roaming agreements.

- Since service providers can perform testing of 15 to 20 roaming partners in a month, this would mean that by any stretch, service providers will not be able to complete the testing before 18-24 months.
- x. Migrating from 10 digits MSISDN to 11 digits MSISDN would further have the following other problems:
- a) Large scale network reconfigurations – Call Routing changes, subscriber reconfiguration in the HLR (potentially deleting and re-creation), Global Title addressing changes;
 - b) Time to connect calls will increase due to requirement to process 11 digits as against 10 digits for intra-circle calls. Additionally, depending on National dialing scheme there could be impact on the call connect time for national calls;
 - c) Call processing load on networks will increase due to the need to process 11 digits as against 10. This would additionally impact the overall subscriber handling capacity of the nodes;
 - d) Severe networks overload during the 10 digits MSISDN and 11 digits MSISDN overlap window – practically for a period of 6 months there will be a need to run both 10 digits and 11 digits MSISDN schemes. This will result in network waiting longer for 11 digit for a 10 digit MSISDN and particularly on the interconnect PCMs with MFCR2 signalling (large numbers in BSNL network);
 - e) Impact on CLI display – a large number of CLI display device in India are capable of displaying 10 digits CLI and the same will start displaying erroneous data;
 - f) Reconfiguration of handsets – customers will require MSISDN database amendments both for preconfigured numbers for VAS (e.g. MSISDN for Voicemail, MSISDN for SMSC) and for other customers MSISDN;
 - g) Machine to machine applications (e.g. handsets providing automatic meter readings) would either need manual updation or over the air configuration – large effort and cost;

- h) Impact on call barring facility in fixed line networks – current barring is based on approach to bar customers dialing “0” and / or “00”. Depending on the numbering and dialing plan, fixed network operators may have to compromise on barring facility to customers;
- i) Large dependency on execution of MNP in the country – numbering plan changes need to be either carried out prior to execution of MNP or post MNP. If carried out now, it will result in MNP getting further delayed by 9 – 12 months; if MNP gets implemented earlier, change to 11 digits MSISDN plan can be carried out after 12 -18 months on the MNP programme commencing;
- j) Potential changes to LI systems to support 11 digits MSISDN regime;
- k) Huge impact on IT Systems – Current systems are based on 10digits MSISDN; there will be software and database changes to accommodate 11 digits MSISDN – systems impacted will be Billing, mediation, provisioning, CRM, Revenue Assurance. Additionally the size of the overall database will increase in addition to additional processing horsepower and memory required to support the change;
- l) Impact on on-line websites and customers’ ability to carry out online CRM activities – significant change for all online and offline electronic applications and tools;
- m) National waste due to the need to amend the paper based forms – current paper forms have 10 digits MSISDN entry against 11 digits required in future;
- n) National effort for level opening across the country if 11 digits regime is implemented by prefixing a digit to the current MSISDN;
- o) Banking industry will also be adversely affected in cases where push applications are used to send information to customers; CRM systems need to handle the 11 digits change and update to customers MSISDN;
- p) National Do Not Disturb database and application will require changes;
- q) Changes in Applications provided by VAS providers (e.g. CRBT, etc.);

Given the cumulative impact all of the above, we believe that unless there was absolutely no other alternative to address the numbering issues, it would be most unjustified to move to a 11-digit numbering scheme.

As already submitted by us, the issue can be adequately and efficiently addressed within the existing framework.

With a little reorganization of the present 10-digit numbering scheme, we can ensure that there is enough capacity to meet the subscriber growth requirements for many more years to come.
