महानगर टेलीफोन निगम लि॰
(भारत सरकार का उद्यम)
Mahanagar Telephone Nigam Ltd.
(A Government of India Enterprise)
CIN: L32101DL1986GOI023501

स्वच्छ भारत
एक कदम स्वच्छता की ओर

To,

The Pr. Advisor (NSL)
TRAI, New Delhi

Sub: Comments on TRAI Consultation paper on "Duration of alert for the called party" dated 16.09.2019.

This is in reference to the TRAI's Consultation paper dated 16.09.2019 on the aforesaid subject. The question wise comments on the issues identified are submitted as follows for consideration:

Q.1. Can the arbitrary value of $T_{Ringing}$ impact consumer experience? Please give your views with detailed justifications.

Comments: Yes, it does. Customers (as calling party) have no means to know to which operator (with how much set ringing time) their outgoing calls are connecting and in case of arbitrary values they will remain confused and perplexed as for how much time, one should wait for other end to pick the call and whether to re-dial or not. Similarly, in case of ported out numbers, the subscribers (as called party) will have to change their habit of picking phones based on different operators' set ringing time.

Q. 2. How to discover the appropriate values of $T_{Ringing}$ from customer's perspective? What may be the guidelines to be followed when configuring specific values of relevant timers in the originating and terminating networks to achieve $T_{Ringing}$? Please give your views with detailed justifications.

Comments: The appropriate values of $T_{Ringing}$ cannot be calculated appropriately as customers' behavior are totally different individual-wise and mostly governed by nature, culture, urgency and compulsion.

The guidelines for forced release (if taken as reference for ringing time) for 'No Answer' scenario in PSTN network are already deliberated in TEC Generic requirements GR No. GR/LLT-01/06 April 2007 and there is no

need to change it as there is no much change in fixed-line PSTN network dialing and set-up.

The concept of less ringing time to save resources will fail or adversely impact in many call-scenarios, some of which are elaborated as below –

- Calling party dials the Called party and gets disconnected in 20 sec, but continues to re-dial repeatedly due to urgency or under assumption that the called party may not be very near to the handset.
- A party tries to dial repeatedly and simultaneously B party, seeing the known missed number, dials back repeatedly and both faces network congestion as both are busy resulting in more wastage of resources.

Q. 3. Is there a requirement to configure values of timers related to ringing in a uniform manner across the networks or is there also a requirement to maintain additional time margins for the timer in the originating network with respect to the typical values of timer configured in the terminating networks? Please suggest typical values for $T_{Ringing}$ along with supporting data and explain with detailed justifications.

Comments: The typical value for $T_{Ringing}$ should not be less than 60 sec as it will result in frequent failure or non-completion of Toll-Free calls (which have multiple mapped numbers against single Toll-Free number) as each mapped number (in case of 4) will be giving only 5 sec to operator to pick a call (in case of 20 sec ringing time, if applied). It should be noted that at present a very large chunk of PSTN network traffic are Toll-Free traffic.

Q. 4. Whether customers need to be offered options to change or modify the duration of ringing time particularly for them? If yes what should be the typical range of values within which one can set the values and what should be the granularity to make such a change? To modify values, what procedure is suggested to be followed by the customer to make such changes? Please give your views with detailed justifications.

Comments: No. It will unnecessarily add into complexities into an already complex telecom structure.

Q. 5. How to discover the appropriate values of percentage of calls that can be force released by the network i.e. value of CREL, which may be acceptable in general from customer's perspective? How this value affects with the changes in value of the T-Ringing? Please suggest typical values for CREL along with supporting data and explain with detailed justifications.

Comments: No need. CREL of 60 sec for PSTN network should be continued and fixed at 60 sec only as it has also been arrived by some systematic analysis and data mining by earlier analysis of experts and there is no much change in PSTN network dialing and infrastructure (MTNL perspective) as on date.

Q. 6. How the impact on the utilization of different types of telecommunication resources such as radio spectrum, point of interconnect etc. may be assessed due to the change in the values of timers, related to duration of ringing, configured at originating network or at terminating network? Please provide details of computation methodology to make such assessment along with supporting data to justify the suggested value of T-Ringing.

Comments: Not needed as we are against any change in present $T_{Ringing}$ and CREL values (justification already elaborated against Q. 2, 3 & 5).

Q. 7. Whether networks can be adaptive by utilizing Artificial Intelligence (AI) and Machine Learning (ML) techniques to discover appropriate value of ringing duration specific to a subscriber or class of subscriber? Whether networks can also differentiate commercial calls from normal calls from the perspective of ringing duration? Please provide inputs and give your views with detailed justifications.

Comments: Same as Q.6.

Q. 8. Any other issue which is relevant to this subject?

Comments: NIL.

Para 3.4 TRAI Consultation Paper: (Information needed for further analysis):

(i) 'Ringing time from customer's perspective before network force call release if call re-mains unanswered in the fixed line and mobile network, License Service Area wise and Technology wise.

PSTN: As the fixed line telephones are installed at a particular location in the customer's premises, therefore to attend a call customer should get enough time to access the telephone instrument for which approximately 45-60 sec is required. Old aged customers will be impacted if we reduce the ringing timer and in such cases, there will be more no reply calls.

Therefore, ringing time from customer's perspective, before network force call release, should be around 60 sec.

Wireless: The Busy Hour (12:00 hrs to 13:00 hrs) CDRs were analysed in MTNL MSC and GMSC to calculate the duration of alert time i.e the difference of "charging_start_time" and "Channel Allocation Time". The detail is depicted below :

Summary:

Time (S)	01-05	05-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	Total
MSS (MOC)	531	3841	3932	2611	1008	597	315	146	72	13053
Percentage	4.07%	29.43%	30.12%	20.00%	7.72%	4.57%	2.41%	1.12%	0.55%	
MSS (MTC)	1156	10309	7142	4236	1489	740	362	141	130	25705
Percentage	8.86%	78.98%	54.72%	32.45%	11.41%	5.67%	2.77%	1.08%	1.00%	

Observations :

➤ In case of Mobile originated calls, The maximum percentage of ringing duration of answered calls lie in the range of 5 to 20 sec.

➢ In case of Mobile terminated calls, the maximum percentage of ringing duration of answered calls lie in the range of 5 to 20 sec.

➢ GMSC CDRs for the calls going towards various POIs were also analysed and The maximum percentage of ringing duration of answered calls observed in the same range of 01 to 20 sec.

(iii) Impact on ASR (Answer to Seizure Ratio) with different timer value configuration.

PSTN:

This data is not available in MTNL Delhi PSTN. Further it is submitted that in MTNL Delhi PSTN the ringer timer was not changed and it is 60 Sec. However, we can say approximately that maximum calls are attended between 10 to 40 sec and after 40 sec generally it goes for no reply. In a low traffic domain, ASR will have no impact if you increase this timer and can impact negatively if you reduce this timer.

WIRELESS:

Distribution graph showing actual data as described in the above table is as below :
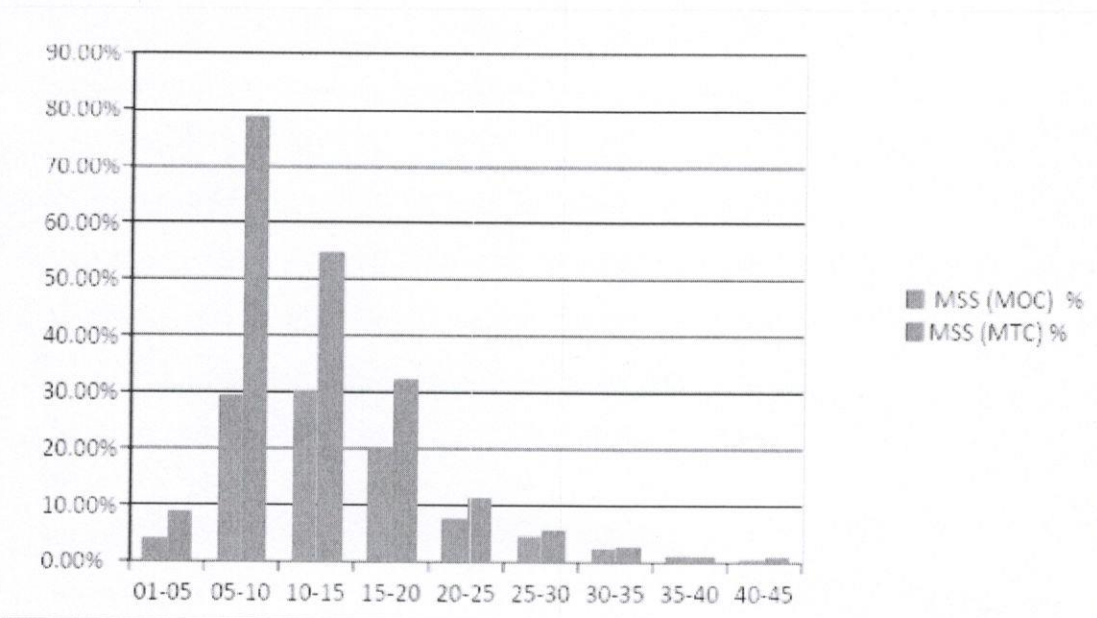
- In MTNL Delhi GSM Network, the ringing timer is defined as 45 Sec, as per the CDR analysis of all types of answered calls, it is observed that calls are answered well before expiry of ringing timer. Therefore change in ringing timer above 45 sec would not affect the ASR (pl. see the distribution graph). The change in ASR may be noticed effectively if the ringing timer is reduced below 20 Sec, the impact on ASR can be assessed from the above distribution graph.

- Impact of different timer value on different use case scenario can't be assessed as the above analysis is done on CDR Basis.

(iv) Impact of different timer value on different use case scenarios, such as call forwarding, call waiting, wearable smart devices, parallel calling, cascaded calling etc.

With Respect to IN service- The TFS or UAN number is mapped to multiple Landline/ PRI or mobile numbers in Cyclic/ random order, in order to complete the call on available mapped number thereby increasing the User satisfaction in one attempt.

Generally 4-6 numbers are being mapped to a TFS / UAN number. The numbers are to be tested for Busy/ No reply condition for diversion on next option. The time period of each mapping is to be adjusted on the basis of Total duration of Alert for the called party i.e. 60 sec currently.
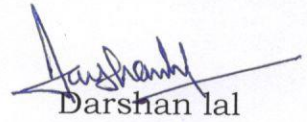
For 6 numbers mapping, there are roughly 10 seconds available for each options to explore. In case of lesser duration e.g. 20 seconds, only 2-3 mapping options can be explored and thereby increasing call attempts and hence more burden on Telecom Infrastructure and traffic.

Due to such constraints, IN service can't run smoothly on lesser Call ringing duration than 60 sec.

Call forwarding: - As per requirement of some customers, "Call Forwarding on No Reply" facility has been provided wherein calls are received on a group of terminating numbers which are selected in a particular sequence. In a typical case, if first number of the group on which a call terminates is no reply (which is determined after certain ringing time) then call lands on second number of the group and so on. In such call scenario with ringer timer configured on lower side, the whole ringing time may be consumed by first terminating number only and before forwarding of call on second number or on third number of the group the network may release the connection forcefully and thus second, third or next terminating number in the group will not receive any call.

Many public utility services working on "Short Codes" have multiple terminating numbers created in a hunting group where incoming call first of all lands on the pilot number and if it is no reply then routed to other numbers of the hunt group. Therefore, if ringer timer is configured on lower side then it will impact adversely to "Call Forwarding on No Reply" call scenario.

Call waiting: - No impact

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