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भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

To,

Advisor (QoS),
Telecom Regulatory Authority of India (TRAI),
Mahanagar Door Sanchar Bhawan,
J.L. Nehru Marg, (Old Minto Road)
New Delhi - 110002, India

No. Regln/1-13/2012/ 9218 Dated: 30-09-2019

Kind attention: Shri. Asit Kadayan, Advisor (QoS)

Sir,

Sub: BSNL Comments on TRAI's Consultation Paper on "Duration of alert for the called Party"

Kindly refer to TRAI's Consultation Paper dated 16-09-2019 on "Duration of alert for the called party" vide which TRAI has sought comments on the issues of consultation paper.
The point wise comments of BSNL is below:

Q. 1. Can the arbitrary value of TRinging impacts consumer experience? Please give your views with detailed justifications.

BSNL Comments:

Yes, there should be standard timer value so that customer have the idea of ringing time. Very low value of time will increase the missed call numbers and it will drop ASR. At the same time, a very high value of timer will result in un-necessary wastage of precious resources. Moreover, the uniform ringer time should be enforced for all operators as the change of value by one Operator may affect the traffic pattern between the Operators.

A sample analysis have been made by configuring the ringing time to 45 seconds in the network and it is observed that more than 95% of calls have been answered within 30 seconds of making a call. Following is the percentage of answered calls for different ringing time periods:

Ringing time period (in Seconds)	**% of answered calls**
Less than 10 Sec. (i.e. <10 Sec)	46.11%
Between 10 to 20 Sec (i.e. >= 10 sec & <20 Sec)	38.65%
Between 20 to 30 Sec (i.e. >= 20 sec & <30 Sec)	11.68%
More than 40 Sec.(i.e. >40 Sec.)	3.54%

There is possibility of around 95% of calls get answered even if the ringing time is reduced to 30 seconds. Moreover, the network resources could be saved for remaining 15 seconds. If majority of calls are answered within 30 seconds, the saved network resources will be considerably high which may contribute in reducing the network congestion.

However, if the T ringing time is reduced arbitrarily to lower values, say 20 seconds, there might be a large number of missed calls in the network. This would add to further call back attempt by called party which may adversely impact the network resource utilization.

Reducing the TRinging below 30 seconds would be an uncomfortable to the consumer and will reduce the quality of service.

Q. 2. How to discover the appropriate values of TRinging 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 TRinging? Please give your views with detailed justifications

BSNL Comments:

For customers' perspective, it can be tested by making a good number of sample calls in a network for various ringing time durations vis-a vis network performance and customer experience in eco- system. The results may again vary for Urban and Rural customers.

It must be taken care of that the value of configured ringing time shall not affect supplementary services such as Call Forwarding and VAS services like PRBT etc. as such services are opted by customers and these are chargeable to customers.

Given below is the data taken from PRBT server of BSNL for mean holding time of various tones:

The same could be approximated to the ringing time.

Mean Holding time (Sec)	<20	20-30	30-40	40-51
TVM NOKIA GMSC	70.43 %	12.11 %	11.90 %	5.56 %
EKM NOKIA GMSC	71.70 %	15.02 %	11.88 %	1.39 %
EKM ZTE GMSC	72.42 %	8.50 %	7.95 %	11.13 %
CLT ZTE GMSC	70.05 %	9.25 %	3.23 %	17.47 %

It is also important to consider average time taken for answering a call by different age group of population. As a general observation young generation might be keeping their mobile phones within close proximity however for old generation there is inconvenience in picking up phones.

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 TRinging along with supporting data and explain with detailed justifications.

BSNL Comments:

The values of timers related to ringing should be uniform across all networks. Radio resources are being used in the originating network as well as terminating network. The POI resources are also shared. Hence uniform timer value is justified.

In case of configuring same ringing time by originating Operator and terminating Operator, there are chances of simultaneous generation of contradicting signal at originating and terminating ends. This may affect the performance of originating Operator. Therefore, it is proposed that originating network timing should be kept slightly higher than terminating network.

Considering supplementary services like Call Forward, a value of minimum 30 seconds is justified. In some of the handsets, maximum ringing time value for call forwarding is set up to be 30 seconds and the same cannot be modified over the air. Hence if Tringing value is set to value less than 30 seconds, the Call forward setting and behaviour would be inconsistent.

However, for intra-network calls, the flexibility for choice of ringing timer values may be given to operator, provided a minimum value is ensured by TRAI guidelines.

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.

BSNL Comments:

Customers need not be offered with options to change the ringing time. In Operator networks, there are various technologies from different vendors are used, hence technical feasibility may vary. It shall also be an unnecessary burden on TSPs.

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 TRinging? Please suggest typical values for CREL along with supporting data and explain with detailed justifications.

BSNL Comments:

It is required to examine the ISUP circuits to find out whether any circuit is left out in hang condition either using reports or by directly interrogating the system using commands. However, real effect of changing of ringing time on CREL need to examined with real time data in different ringing time scenario for a considerable time period at least one month. This also require the examination of effect on termination charges, network resource utilization, customer complaint etc.

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 TRinging.

BSNL Comments:

It is required to vary the ringing time and observe the KPIs related to resource utilization. All the KPIs which are expected to change may be observed closely before getting into a conclusion. The results may not be uniform across operators /across geography because the outcome depends on the present network load on radio, POI etc. and also on customer answering time pattern. To find out the actual effect a real time testing for at least one month need to done on different networks. However, to have an estimated idea ringing time was reduce from 45 second to 20 sec for one hour in one of the BSNL network and following are observed:

Impact of ringing timer values in Mobile network

ASR (%)	Ringing Timer (Sec)	Remarks
53.74	45	ASR reduced by 12% from 53.74 to 47.81 within one hour of interval when ringing timer reduced to 20 Sec from 45 sec
53.5	45	
48.34	20	
48.87	20	
48.37	20	
47.81	20	

Setting of Tringing timer to a reasonable value will help in following:

(1) Avoid repetition of call back in network also save customers time and maintain customer's perceptions.

(2) Avoid re-utilisation of radio as well as core network due to multiple calls back.

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.

BSNL Comments:

It seems, presently it would not be possible in network to adapt AI & ML for appropriate value of ringing duration specific to a subscriber or class of subscriber. It would require to consult equipment vendors to examine the possibilities and may require time to assess the same.

Differentiating between commercial calls and normal calls by network from the perspective of ringing duration seems to be difficult task.

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

BSNL Comments:

For wireline services, BSNL has configured ringing timer value to 60 seconds at present.

30.9.19

(Ved Prakash Verma)
AGM (RegIn-II)