VIL submission to TRAI consultation paper on Duration of Alert for the called party dated 16th September 2019

Preamble:

- Once a call is made by a mobile subscriber (i.e. calling party of an originating operator), the control w.r.t $T_{ringing}$ has to be with the terminating operator, as the terminating operator is under obligation to ensure the call is properly handed over to its customer and the provide various services to its subscriber (including emergency services and supplementary services as call transfer/forward, voice message recorder, etc.). These services are essential to the subscriber and integral to the mobile services availed by the subscriber from its operator.

- However, recently, the above principle has been disrupted with $T_{ringing}$ control taken over by an originating operator, where the $T_{ringing}$ value is set lower than that of the terminating operator.

- As a result of the above, subscribers of the terminating operator are not able to properly use various core services, supplementary services etc, resulting in degradation of customer experience. Importantly, it leads to call attempts by party receiving the call in initial session, repeated missed called attempts by calling party and a perception of abrupt disconnection while call is ringing.

- If control is enabled at originating operator's end, then it will lead in non-fulfillment of end-to-end core services and supplementary services by the terminating operator to its subscribers and resultant customer dissatisfaction due to multiple attempts even by receiving party and concomitant increase in network utilization.

- Hence the $T_{ringing}$ control should continue to be with the terminating operator.

- If at all the $T_{ringing}$ timer is to be set up by the originating operator, then $T_{ringing}$ value should be equal to or more than the terminating operator's $T_{ringing}$ control value. Further, in such case a uniform timer will be required to set the consistent expectations of the customers and to avoid any loss of calls due to very low timer – in such a scenario, the Authority must issue common minimum standard value to all TSPs that ensures good customer experience at mobile industry level. Further, the technical feasibility of implementation of $T_{ringing}$ control at the originating operator level will also need to be assessed across all TSPs' core network elements (on account of multiple suppliers based core network equipment deployments).

- From the statistical data available basis customers' usage of our network, we can see that 99% of local & national calls get answered within 30 seconds of Ringer time. Thus, any reduction of Ringer time will result in lower ASR (answer-seizure ratio), increase in user attempts, increase in signalling and unsuccessful call in first attempt.

- From this statistical data, it is also seen that in some cases 7% of local & national calls get answered within 25 to 30 seconds, which is a significant percentage/volume, thus pointing to the fact that ringing timer is optimal at 30 seconds.

Issue-wise response:

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

A 1. Yes, in the absence of $T_{ringing}$ control at terminating operator's end, an arbitrary value of $T_{ringing}$ at originating operator's end will definitely adversely impact customer experience of the terminating operator. Lower $T_{ringing}$ value may not give enough time to terminating operator's subscribers to attend calls, resulting in receiving party calling back (this pattern is deduced considering overall outgoing and incoming calls) , increase in user attempts and increase in signalling load on network. It can also lead to increase in missed call attempts and missed call messages resulting in inefficient utilisation of resources.

Further, subscribers of the terminating operator may not be able to properly use various core services, supplementary services etc, resulting in degradation of customer experience. Core services are in the nature of voice calls to emergency numbers/L1services and customer care numbers of various third party essential services like IVRs/consumer helpline w.r.t banking services, government services, educational services etc. Apart from these services, the supplementary/ancillary services as noted by the Authority in the consultation paper such as call forwarding, call waiting, wearable smart devices, parallel calling, cascaded calling, voice mail and many other such services will get adversely impacted.

We do not see any adverse impact on customer experience with reasonable ringing timer to avoid inconvenience to subscribers

Till date, the $T_{ringing}$ control was always with the terminating operator and this must be maintained because the terminating operator is under obligation to provide the services to its customers. It is the need of the calling party to make a call, hence appropriate/reasonable time should be given to called party for response.

However, if $T_{ringing}$ control is left to the choice of the originating operator, it can reduce the $T_{ringing}$ value that will adversely impact customer experience at the terminating operator's end. Hence, if at all $T_{ringing}$ value is to be assigned by the originating operator, then the value of $T_{ringing}$ cannot be left to the choice of the originating operator - it will need to be equal to or more than the terminating operator's $T_{ringing}$ control value. In such a scenario, the Authority must issue a common minimum standard value to all TSPs that ensures good customer experience at mobile industry level.

The technical feasibility of implementation of $T_{ringing}$ control at the originating operator level will also need to be checked across all TSPs' core network elements (on account of multiple suppliers based core network equipment deployments). The Authority may seek such details from TSPs/suppliers. There are feasibility concerns in this respect.

In case there are different ringing timers at each TSP's end, each TSP will have to get aligned with other TSP's configuration to run end-to-end mobile service w.r.t its own subscribers. Aligning with multiple TSPs' configuration would either be a complex configuration or may not be technically possible/feasible in all core network elements (on account of multiple supplier based equipment deployments), as $T_{ringing}$ timer is a global parameter. A disparity in ringing timer between TSPs' networks may lead to serious issues and result in overall customer dissatisfaction at mobile industry level.

Hence, we reiterate that $T_{ringing}$ control should only be at the terminating operator's end. If at all the $T_{ringing}$ control is allowed to the originating operator, this value cannot be left to the originating operator's choice. The Authority, in such case, must issue a common standard value to all TSPs that ensures good customer experience at mobile industry level and which will be subject to feasibility.

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.

A 2. We have already submitted data to the Authority w.r.t an operator's recent reduction in timer value (at originating end) from 30 secs to 20 secs, and shared the impact on our network in terms of significant drop in ASR (answer seizure ratio) values. We are now sharing the impact observed in our network with that operator's increase in timer value (at originating end) to 25 secs, where we see improvement in ASR values, with further scope of improvement with timer value at 30 seconds. Refer **Annexure 2**. Hence, the minimum ringing timer should be retained at 30 secs. ASR values are a direct reflection of the customer's behaviour and give a reference value for setting of appropriate ringing timer.

Also, the distribution of calls w.r.t duration in which the call is responded by the called party versus different time frames will give complete clarity on customer behaviour and this can be taken as reference by the Authority (we have shared statistics w.r.t customers' usage of our network in this regard, which is delineated in response to Q3 below).

This can also be derived considering different types of supplementary services that are offered by each TSP to its customers along with timers defined to support the same.

As per our understanding, the $T_{ringing}$ value being followed at other TSPs' networks across the world is 30 secs like Verizon, T mobile etc. In the Indian context, this reference is important as the $T_{ringing}$ value should be similar/equal to the values adopted by the other global operators to provide a consistent customer experience w.r.t international roamers (both in-roamer and out-roamer).

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.

A 3. If the $T_{ringing}$ control remains with the terminating operator, there is no requirement of maintaining additional time margins for the timer in the originating network. However, if at all the $T_{ringing}$ control is to be given to the originating operator, then it should be equal to or more than the terminating operator's $T_{ringing}$ control value. Further, in such case a uniform timer will be required to set the consistent expectations of the customers and to avoid any loss of calls due to very low timer – in such a scenario, the Authority must issue a common minimum standard value to all TSPs that ensures good customer experience at mobile industry level.

From the statistical data available basis customers' usage of our network, we can see that 99% of local & national calls (1 circle) were answered within 30 seconds of Ringer time, while in case of ILD (pan India), 96.4% calls (all countries) were answered within 30 seconds. Refer **Annexure 1** below. Thus, any reduction of Ringer time will result in lower ASR, increase in user attempts, increase in signalling and unsuccessful call in first attempt.

In order to have control at both originating and terminating side, we will need to adjust other timer values like paging timer (first page, second page & global page), call waiting timer, announcement prompt duration, timers used for core services, supplementary services, VAS services etc.

As explained in response to Q no.1, there is a genuine and critical reason to have uniformity across TSPs for ringing timer. It should be ideally the terminating operator's responsibility and originating operator cannot set ringing timer below the terminating operator's ringing timer. The need of fixing the uniform ringing timer by the Regulator will only arise when this principle is not followed.

Hence, we strongly recommend a minimum value of 30 seconds for ringing timer at terminating side, to be uniformly applied by all TSPs for mobile networks which will ensure high call success in first attempt and help improve customer satisfaction.

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.

A 4. Customers on both sides i.e. at originating and terminating operator's respective ends have options to disconnect the calls. The customers at originating operator's end have no knowledge of the recipient of user's status, since the calling party has initiated the call hence there is no basis at originating side to have control of ringing timer at their side.

We have not seen any need or customer requirement at the called party end of this kind of functionality of modification of duration of ringing time. Voicemail is a marginal service in the Indian context whereas it is a

widely used service in other countries – thus, any international benchmarks/references w.r.t voicemail service related ringing timers are not relevant in the Indian context.

Customers need to call for various purposes or need to call to various third party services (some of which may be critical/essential in nature such as emergency helplines, banking uses etc) for which there may be QoS requirements/SLAs fixed for serving the critical/essential needs of the consumers from those service providers' perspective. Since, as of now there is no such control with customer, these issues have not arisen. There will be a complex matrix considering calls are made for various purposes/needs to different set of entities/persons by same calling party, hence a uniformity in timer will be critically required.

Q. 5. How to discover the appropriate values of percentage of calls that can be force released by the network i.e. value of C_{REL}, 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 C_{REL} along with supporting data and explain with detailed justifications.

A 5. There is an inversely proportional relationship between the C_{REL} values and $T_{ringing}$ values . When $T_{ringing}$ values are lowered, the C_{REL} values increase exponentially. The missed calls (or B number timeouts) increase exponentially. At the same time, the call back attempts also increase exponentially. Resultantly, there is an adverse impact on network resource utilization (increase in user attempts) and customer experience. Thus, C_{REL} will be minimum only when $T_{ringing}$ value is set as minimum 30 secs at terminating side.

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 $T_{Ringing}$.

A 6. As can be seen from **Annexure 2**, with the decrease in timer values, there is adverse impact on ASR and concomitant increase in network resource utilizations at access, core and POI layer.

We observed in a circle that with decrease in timer value, there is hardly any network utilization benefit in terms of radio resources. Rather, with reduction in timer value leading to increased adverse consumer impact, the resource utilization will actually increase. The overall time and effort consumed in connecting two parties so that they can speak to each other will increase.
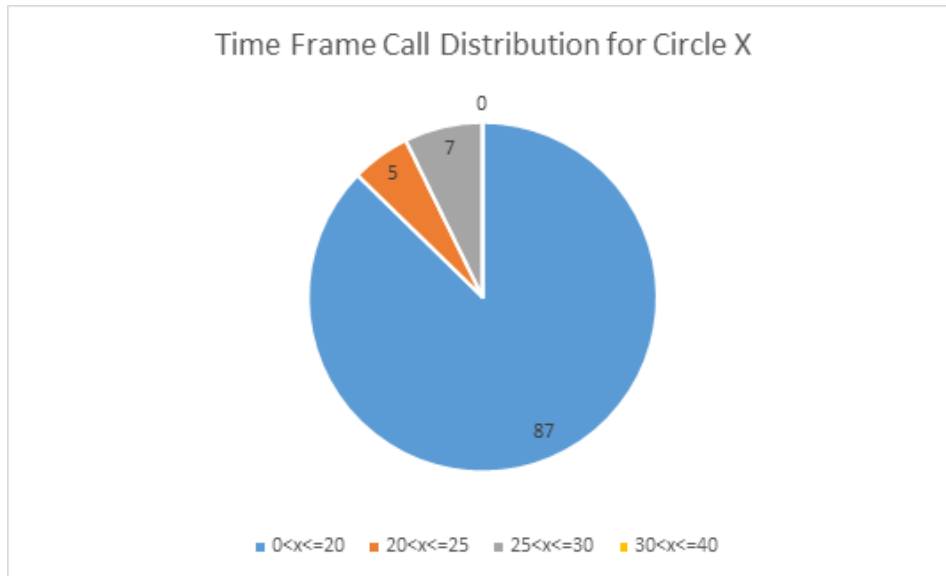
Q. 7. Whether networks can be adaptive by utilizing Artificial Intelligence (AI) and Machine Learning (ML) techniques to discover appropriate value of ringing duration specific to a subscriber or class of subscriber? Whether networks can also differentiate commercial calls from normal calls from the perspective of ringing duration? Please provide inputs and give your views with detailed justifications.

A 7. Adaptive methods need to be studied and tested through AI/ML system and further feasibility will need to be undertaken to set an appropriate value along with compatibility with TSP network configuration on other timer values. Currently there is no such mechanism available to assess this feasibility. It also needs to be seen whether all our network elements will be capable of supporting these functionalities and whether there are any incremental costs involved in implementing the same.
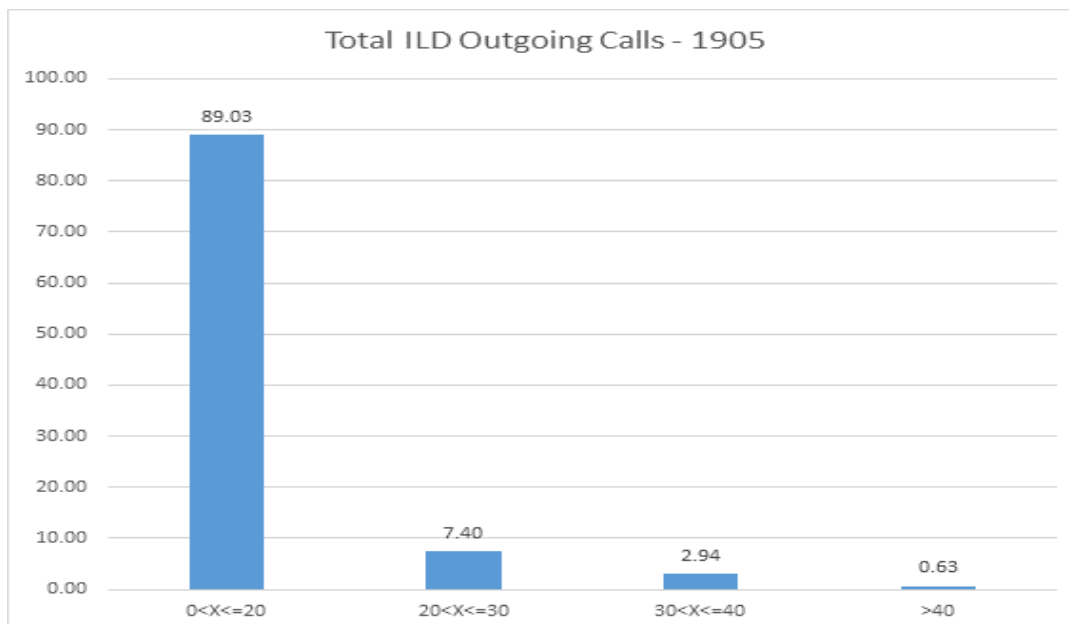
New Delhi
30th September, 2019

Below gragh shows No. of Local and NLD calls that are answered in different time frame for 1 circle. Date - 5th Sep'19 (peak hour – 20:00 hrs)

Time Frame Call Distribution for Circle X

Below gragh shows ILD calls that are answered in different time frame for PAN India. Date - 20th Sep'19 (peak hour – 20:00 hrs)

Total ILD Outgoing Calls - 1905

Hour of Day: *20:00*
Below Table shows ASR values for One Operator OG towards VIL during peak hour :

Till 28ᵗʰ Sep – timer value (at originating end) = 20 secs
28ᵗʰ & 29ᵗʰ Sep – timer value (at originating end) = 25 secs

Circle	Brand	NBH ASR: One Operator OG towards VIL									
		20-Sep-19	21-Sep-19	22-Sep-19	23-Sep-19	24-Sep-19	25-Sep-19	26-Sep-19	27-Sep-19	28-Sep-19	29-Sep-19
1	Vodafone	49.5	48.5	48.9	49.7	49.5	49.3	49.1	50.0	52.3	50.5
2	Vodafone	40.6	40.1	40.7	40.9	41.1	41.2	40.6	41.2	43.0	43.0
3	Vodafone	43.80	44.5	44.6	44.6	46.3	44.2	43.9	44.3	46.8	46.9

- **With the timer change from 20 secs to 25 secs, there is an increase in the ASR value for above 3 circles.**
- **If the timer value is changed to 30 secs, ASR will improve beyond above mentioned values.**

Below Table shows the adverse ASR impact on our network from May'19 onwards on monthly average basis with the implementation of reduced ringing time value to 20 secs at originating end by one operator :

Circle	Monthly Avg. Busy Hr ASR %							
	POI – One Operator OG - VF Access							
	Jan'19	Feb'19	Mar'19	Apr'19	May'19	Jun'19	Jul'19	Difference
Circle 1	55.55	55.89	55.70	55.29	54.64	49.28	46.92	8.62
Circle 2	47.30	49.35	49.03	49.98	49.28	44.74	41.62	5.68
Circle 3	47.52	47.65	47.41	47.91	47.63	42.89	40.63	6.90