Bharat Sanchar Nigam Limited
(A Government Enterprises)

Document for Conducting Proof of Concept (POC) of Personalized Ring back Tone for GSM/ PSTN/NGN/IMS subscribers of BSNL.

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1. Introduction:

BSNL is currently providing Telecom services comprising of gambit of services the core competence in GSM/PSTN/NGN along with different Value Added Service viz. BSNL Tunes PRBT, IVR, SMS, CBS, SIM Tool Kit (STK) based services, MMS, GPRS,WAP, 3G and USSD etc. services across the nation except Delhi & Mumbai and has a GSM subscriber base of approx. 119 Million and 11 Million PSTN subscribers from New Tech switches which are being progressively replaced by NGN switches.

BSNL invites proposals from interested eligible companies for conducting proof of concept (POC) of BSNL Branded Personalized Ring Back Tone service (PRBT) to Wireless /Wire line Customers of BSNL compatible with varied technological switches i.e., GSM/PSTN/NGN/IMS Cellular Mobile subscribers, Code Division Multiple Access, and PSTN subscribers of BSNL using IN based implementation.

BSNL Branded Personalized Ring Back Tone service (PRBT) is a subscriber feature which provides a subscriber the capability to customize the ring back tone by substituting the traditional ring back tone with an audio content.

The proposed PRBT solution shall have the following functionalities/ Service Provisioning Capabilities:

1.1 *RBT Services*

1.1.1. Caller ID
1.1.2. Caller IDs in a Group ID – based tones: Ability for subscribers to register one or   more callers for a RBT. The services must support this ability to assign specific ring back tone information for an arranged group of members.
1.1.3. Time of the day.
1.1.4. Day of the Week.
1.1.5. Event which may be a festival or any event important to the subscriber.
1.1.6. Series of mobile numbers.
1.1.7. Content Categorization
1.1.8. Content Short Code.

1.1.9.   Song as RBT for all Callers.

1.1.10. Song as Personal RBT.

1.1.11. Group (Community) RBT.

1.1.12. Shuffle.

1.1.13. Name Tunes

1.1.14. User Generated Content

1.1.15. Search on Voice

1.1.16. Search on Text

1.1.17. Corporate Tunes

1.1.18. Ad RBT

1.1.19. Reverse RBT

1.1.20. Gifting RBT etc.

1.1.21. The proposed solution shall support the content selection for PRBT based on:

1.1.22. Subscribers own recording (with default preview by the subscriber before actual provisioning).

1.1.23. Selected item in the content database.

1.1.24. Selected category in the content database with further flexibility of playing the individual items in that category on sequential and/or random basis as selected by the subscriber.

1.1.25. Most popular item/category in the content database.

1.1.26. Gifting a PRBT.

1.1.27. Personal album of PRBTs.

1.1.28. Selecting a PRBT that another subscriber has activated, i.e. copy a PRBT.

1.1.29. Progressive Web app (PWA) for PRBT Services

1.2   The proposed solution shall facilitate the provisioning/activation and content selection via multiple interfaces like IVR, SMS, USSD, Web, WAP, Handset Applications, Customer Care GUI, Social network and other third party application servers as per following:

1.2.1 IVR/App based: The IVR interface of the proposed solution shall support the following minimum functionalities:

- Multi Lingual IVR along with the list of Indian languages supported in addition to English.
- Subscribing/Unsubscribing the service.
- Navigation through content catalogue /database/subscriber's own profile.
- Voice Search, Voice recognition and DTMF key input
- Recording by the Subscriber.
- Play preview sound clips for selection.
- Setting the PRBT.

(The solution provider will have to provide IVR infrastructure as part of the solution during POC)

1.2.2   SMS: The SMS interface of the proposed solution shall support the following

minimum functionalities:
- Subscribing/Unsubscribing the service.
- Listing of the content catalogue /database.
- Text search
- Setting the PRBT.
- Managing the group of caller IDs
- Request a PRBT which allows Natural Text Selection of PRBT using the name of the song instead of a numeric ID. For example, Subscriber can send an SMS "PRBT Main Hoon Na" to select the song.
- The SMS based access shall be provided using keywords on short code (allotted by BSNL) or through STK Menu/WIB browser.

1.2.3 WEB/WAP: The Web/Wap interface of the proposed solution shall support the

following minimum functionalities:

- Subscribing/Unsubscribing the service.
- Management of subscribers' own profile.
- Navigation of the content catalogue /database.
- Play preview sound clips for selection
- Setting the PRBT.
- Managing the group of caller IDs
- Search facility.

This will also include the development/operation/maintenance and hosting of the requisite Web/Wap site by the solution provider at its own cost. The home page of the web/wap site will be hosted at BSNL server.

1.2.4   USSD: The USSD interface of the proposed solution shall support the following

minimum functionalities:
- Subscribing/Unsubscribing the service.
- Listing of the content catalogue /database.
- Setting the PRBT.
- Search Facility
- Mobile application.

Handset Applications, Customer Care GUI, Social network sites, App based and other third party application servers: All the functionalities as available for other channels like IVR /SMS/USSD shall also be made available through these channels.

1.2.5   Any other Channel: as per market trend.

1.3 The proposed solution should work as an "innocent node" whereby if the PRBT node is not-available for any reason, normal call processing should continue with regular ring back tone.

1.4 The content required for the services shall be arranged by the solution provider itself at its own costs. The content provider shall extend the latest content for the services without any discrimination vis-a'-vas its offerings on its own short code , if any, or to some other Telecom Operator to whom it may be providing similar services so as to ensure the availability of the content as per the customer preferences/tastes/market scenario. BSNL may arrange for some content libraries on its own, which the solution provider shall facilitate on mutually agreed terms.

Content Management Module should be an open module supporting multiple content providers. The details of which are provide in the scope of work. Thus, if at a later date, BSNL wants to interface with some new innovative type of content providers directly, then the PRBT system should be able to accommodate for such additional content providers.

1.5 Following are the minimum functionalities / flexibilities required in context of the proposed PRBT solution (These profiles are only indicative. Any profiles/ capabilities/features over and above these may be mentioned under separate head within the relevant category)

- The services shall be available to both prepaid and post paid of mobile & landline customers of GSM / PSTN/NGN of BSNL.
- The proposed solution shall have support for existing BSNL equipments and shall be further upgradable to new requirements, as and when new equipments are introduced in BSNL network.
- VASP need to also integrate via interfaces/standards as and when introduced in BSNL network without any cost to BSNL. In case integration is feasible through multiple standards/interfaces, the choice of interface/standard shall be finalized by BSNL so that to maximize operational efficiency.
- BSNL does not envisage any modification/ change(s) at hardware/ software level in its network elements.

2. *Eligibility Criteria:*

The Eligibility criteria for qualifying companies to perform the POC shall be as below:

2.1 The prospective VASP shall either be a company registered and incorporate in India under Companies Act, 1956/2013 or a foreign company. In case prospective VASP is Foreign Company, it can participate either through its established place of business in India duly registered with the Registrar of Companies, Ministry of Corporate Affairs, Government of India or through its wholly owned subsidiary company registered and incorporate under companies' act 1956/2013.

2.2 The VASP should have experience of providing PRBT or similar service to two or more telecom operators for a minimum period of 2 year in the last 5 years having at least two

deployments. The VASP should also have managed a PRBT subscriber base of at least 1 million for an operator. In case of consortium based bids, the lead VASP should have its own experience of providing PRBT out of total experience of consortium or similar service to one or more telecom operators for a minimum period of 1 year in the last 5 years having at least one deployment.

2.3 The VASP shall submit references of experiences, as referred to above, in the form of an original certificate from the relevant network operator signed by the senior official of the relevant network operator (including name, designation, telephone number, fax numbers and e-mail id of the signatory and that of the network operator) along with the seal of the relevant network operator of all such existing networks in operation. References shall be considered valid provided that the networks mentioned thereof exist. BSNL reserves the right to verify such references by visiting directly or through Indian consulate or through any other means for which necessary arrangements are to be made by the VASP. However, the cost of travel allowance/dearness allowance of BSNL officers/executives shall be borne by BSNL. Only certificates issued by the relevant network operator shall be considered valid and no self certification from either the VASP or their collaborators shall be accepted.

2.4 The VASP should have a minimum annual turnover (audited) of INR 50 Crores from PRBT business during the last financial year or in current financial year at the time of submission of proposal. In case of consortium based bids, the lead VASP should have its own annual turnover of Rs.25 (Rs. Twenty Five) Core out of total turnover of consortium from PRBT or similar service/business during the last financial year at the time of submission of proposal. The company will have to submit a Turnover certificate from the company's Auditors/ CA to this effect.

2.5 The company should have tie-up with leading content partners to sell PRBT content in India or have their own content. The company should provide tie-up details with at least three content partners for providing PRBT content to telecom operators in India with a cumulative catalog of 2 lakh PRBT songs.

3. *__List of documents to be submitted as part of the proposal for POC:__*

3.1 Copy of the Articles of Association & Memorandum of Association of the company.

3.2 Latest Annual Report of the company.

3.3 Board's resolution in favor of authorized signatory.

3.4 Certificate from the operator concerned showing the experience as required under the eligibility criteria.

3.5 Turnover certificate from the Company's Auditors/ CA mentioning the turnover as required under the eligibility criteria.

3.6 Contact details i.e. Name, mail id, phone no., mobile no., fax no. of a responsible person for liasoning in this matter.

4. *GENERAL CONDITIONS for POC:*

4.1 The testing shall be on the basis of prevailing DOT/TRAI guidelines as customized to meet BSNL requirements.

4.2 VASP will bear all the cost of equipment including the subscriber instruments/terminals, Prepaid cards, customization, interaction, pre-shipment, installation, commissioning and meeting expenses on its manpower required for testing without obligation on part of BSNL.

4.3 VASP will have to submit Rs. 50,000/- as a processing fee (non refundable) for proof of concept.

4.4 The offer should not confer any right or privilege upon VASP or its associate/partner/sister concerns to claim any superiority of their products or for award of any order/any agreement by BSNL.

4.5 The equipment set up may be located either in or outside premises of BSNL. VASP should arrange the necessary infrastructure at its own cost and risk. BSNL will facilitate the connectivity of its SMS platform and business intelligence (BI) tool to the equipment/ system of VASP free of cost, subject to technical feasibility and availability for trial purpose. The said connectivity should be used for the purpose of said testing only and not for any other purpose.

4.6 VASP shall undertake not to use this opportunity of testing for only commercial gain of whatsoever nature. The said testing permission is not to be publicized either through media or through any other form of communication.

4.7 The equipment set up for this testing may be permitted on purely non-exclusive, non commercial and experimental basis for testing purpose only with no liability or cost to BSNL of whatsoever nature at any stage of testing thereafter.

4.8 Successful completion of POC doesn't confer any right to VASP to enter into commercial agreement with BSNL. BSNL reserve the right to enter into or not to enter into the commercial agreement with VASP, even after successful completion of POC.

4.9 If BSNL decide so, VASP may be asked to enter into commercial agreement as per prevailing policy after fulfilling all the eligibility criteria.

4.10 VASP shall ensure no public interest get created by the permission for this testing. VASP indemnify BSNL of any or all consequences of whatsoever nature arising out of this testing.

4.11 VASP should withdraw/ remove/decommission the equipment set up for the testing, at their own cost and risk within one week time from the expiry of the permitted period.

4.12 VASP shall make its own arrangements, with various agencies, if required during field trial, of financial transactions etc. VASP shall indemnify BSNL in case of failure of any financial transactions.

4.13 NO POC certificate will be issued without prior permission from BSNL CO.

4.14 The above permission shall stand null and void in case of violation of any the above conditions.

5.   _Submission of Proposals for POC_

    Interested companies for PRBT POC shall have to submit (non refundable) processing fee of Rs.50,000/- in the form of DD in favor of AO (Cash) BSNL CO. New Delhi. The proposals from the interested eligible companies shall be accepted at the following address up to **1600 hrs of xxth Oct, 2020**.

Rajesh Kumar Chawla
O/o GM (VAS),
BHARAT SANCHAR NIGAM LIMITED
(CORPORATE OFFICE/ VAS UNIT)
BSNL Bhawan
Janpath, New Delhi 110001

6.   _Scope of Work:_

    To ensure for better selection of new vendor at the appropriate time BSNL may invite various PRBT vendors to carry out POC with BSNL network. Such successful vendors who complete the POC successfully may be allowed to bid at the time of new vendor selection. This will ensure mitigation of migration related problem and integration difficulties.

    The work by the solution provider shall comprise the following activities, which are indicative but not exhaustive. However notwithstanding contained in following Para's VASP shall be capable of providing all the features/services as being provided by BSNL presently and other top three Telecom operators(in terms of total number of subscribers) of the country. In addition VASP shall be capable of launching new features/services as and when launched by BSNL's competitors and as per the market requirements without any additional cost to BSNL.

6.1   Provision of hardware and software: The solution provider shall be responsible for provisioning & commissioning of the requisite hardware, software and/or application (s) at its own costs. This will also include the provision of integrated & easy-to-use module(s) required for customer care (to help in answering the subscriber queries & to help them in provisioning process), generation of various statistics pertaining to the services (report engine), system monitoring/auditing, etc. The access to such module(s) shall be through a secure/ protected web based interface.

6.2   *Hosting infrastructure:*

6.2.1 BSNL will provide hosting space to VAS Provider inside its own premises subject to availability of space. The availability of space will be decided by the concerned Zonal In charge. The decision of BSNL authorities in this regard shall be final.

6.2.2 Co-location facility in BSNL premises will be extended to VASP subject to feasibility & payment of requisite infrastructure charges. The space for infrastructure required in such cases shall be provided by BSNL as per the requirement justified by the VAS Provider.

6.2.3 BSNL shall provide infrastructure like AC, power, space, local connectivity etc at no cost to VASP. However, the same shall be provided to VASP based on actual requirement and availability of infrastructure.

6.3   *Content management:* The company/ content provider shall be responsible for arranging and managing the required content along with the copyrights/ IPRs at its own costs. The Details of the features required by the Content Management system is as follows:

6.3.1 The Platform should support both G711 (Mu-Law & A-Law) & G729 based coding of content.

6.3.2 Platform should support categorization of the content (e.g. Top 10, New Releases, Top Movies, Top Albums, Local, International and Devotional)

6.3.3 Platform should support creation of new categories & set specific Content Metadata parameters as category identifiers.

6.3.4 Platform should allow access to authorized Content Providers to upload on-demand and in near real-time & manage the content using a web GUI.

6.3.5 Platform should support multiple image sizing to cater the needs of digital storefronts outside of standard sizes.

6.3.6 Platform should support upload of content in Bulk

6.3.7 Platform should support Authoring of the Content.

6.3.8 Platform should support Content Editing.

6.3.9 Platform should support Menu creation via configuration on the GUI.

6.3.10 Platform should have capability to remove duplicates at the time of content ingestion.

6.3.11 Platform should integrate with content providers with automatic feed integration as opposed to manual upload from content providers.

6.3.12 The Platform must also support FTP upload of content to ensure service continuity in the event of there being any issues to the real-time upload of content.

6.3.13 The Platform should support the upload of artwork and other associated print material, in the required format, from the CPs.

6.3.14 The Platform should support the updating and changes of metadata, as dictated by changes in business models and the communication of these changes to the CPs.

6.3.15 It should be possible to search for the Content using any of the meta data parameters of the Content (Song Name, Category, Album etc.).

6.3.16 It should be possible to search for Content using phonetics with necessary corrections for the spelling applied.

6.3.17 The Platform should have flexibility to configure/design the website as per Business requirements in the shortest possible time.

6.3.18 The Website should be fully functional on all major Internet Browsers i.e. Google Chrome, Internet Explorer, Safari, Firefox.

6.3.19 The Platform should be capable of providing online reports for content partners for PRBT.

6.3.20 Dedicated content reporting system from CMS needs to be provided for content business reporting with slices of content providers, content aggregators, operators, and circles.

6.3.21 The Platform should be capable of distributing content across circles.

6.3.22 The Platform should be able to create digital signature of each content for content mapping across geography/product/operator.

6.3.23 Platform should support all content format such as audio, images, animated content, wall paper, clip art, and others.

6.3.24 Platform should be able to generate meta data using crawler for meta data efficiency to use for search and other applications.

6.3.25 Platform should have the ability of mapping the content across various BSNL VAS properties as well with other operators in India.

6.3.26 Platform should support upload of chargeable IVR with PPU charging on IVR.

6.3.27 Platform should support upload of RBT on toll free IVR.

6.3.28 Platform should support free song search via SMS & set RBT.

6.3.29 Platform should support all content format select song from OBD & set RBT.

6.3.30 Platform should support all content formats from WAP portal & choose song for RBT.

6.3.31 Platform should support USSD string and set RBT from song list.

6.3.32 Platform should support search & set name as RBT through USSD string.

6.3.33 Platform should support login to web portal and choose song for RBT.

6.3.34 Platform should support set the specific song for specific caller.

6.3.35 The Platform should be able to gift the RBT to another user.

6.3.36 The Platform should be able to shuffle the song from RBT list present in profile.

6.3.37 The Platform should be able to time based RBT feature to set RBT for particular day/time/date of the month.

6.3.38 The Platform should be able to copy the song from other RBT user while calling.

6.3.39 Platform should support search the song on IVR through own voice.

6.3.40 Platform should support download RBT for smaller/bigger periods quarterly, half yearly or yearly.

6.3.41 Platform should support download the RBT on daily basis.

6.3.42 Platform should support get group of songs as RBT with single subscription.

6.3.43 The Platform should be able to set name as RBT by sending SMS or by dialing IVR.

6.3.44 The Platform should be able to set name as RBT in different languages.

6.3.45 The Platform should be able to set shop name/ organization name/ industry name as RBT.

6.3.46 The Platform should be able to interactive SMS based RBT service where user can communicate with SMS app via MO and MT SMS's.

6.3.47 The Platform should support android user can download the app to select the song and subscribe the RBT service.

6.3.48 The Platform should support sending OBD with specific Genre/Type of song as per user history.

6.3.49 The Platform should support subscribe to RBT service with reduced charges for specific validity.

6.3.50 The Platform should support plays cricket streaming as RBT sothat caller can listen to the scores.

6.3.51 The Platform should support the current status as RBT Ex busy, traveling and sleeping etc.

6.3.52 The Platform should support every time users gets the different song list by dialing the same as USSD/IVR string.

6.3.53 The Platform should support same RBT can be set for the employees of the company in bulk.

6.3.54 The Platform should support advertise can be played before the RBT song.

6.3.55 The Platform should support users has the service installed on his SIM, which has direct access to the RBT songs option.

6.3.56 The Platform should support select and crop the favorite line from the songs on IVR.

6.3.57 The Platform should support search and subscriber to BSNL through face book messenger

6.3.58 The Platform should support download the RBT for smaller to bigger validity for specific event/festival.

6.3.59 The Platform should support append the BT code after IVR service code and dial to listen and set RBT directly.

6.3.60 The Platform should support video to RBT user can watch the video song and set the RBT of the same song.

7 _**Charging and Billing information**_: The necessary logs/Call Detailed Records (CDRs) in support of delivery/ provisioning of content/services to facilitate the charging/billing of the subscribers of the services shall be provided to BSNL, as per format & frequency requested for by BSNL. Following are the prerequisites for the charging and billing system.

7.1 The Platform should support Subscription Management functionality

7.2 The Platform should support Daily, Weekly, Monthly Subscription.

7.3 The Platform should support subscription for 'X' no. of days, where X is configurable per Subscription service .

7.4 The Platform should support offering Trial/Free subscription.

7.5 The platform should support Pay Per Use charging model PRBT system

7.6 The Platform should support configuration of Periodic notifications for informing Subscribers of expiring subscriptions.

7.7 The Platform should support step down charging based on predefined price points.

7.8 The Platform should support Event based charging for Selection/Change of CRBT.

7.9 The Platform should support different charges for Tune selection based on the profile of the subscriber.

7.10 The Platform should support configuration of different Event & Subscription based charging mechanism for Corporate, Busy Tunes.

7.11 The platform should be able to identify the subscriber type (Prepaid/Postpaid) & generate charging requests towards the corresponding IN.

7.12 The system should support standard Web services based interfaces to the IN e.g. SOAP/XML, XML/RPC, XML/HTTP, Parlay X etc.

7.13 The system should support Diameter based charging interface for Real-Time charging of Pre-paid subscribers.

7.14 Apart from the above interfaces, the platform should be able to support Diameter & Non-Diameter based charging interfaces extended by all IN platforms of BSNL.

7.15 The PRBT Platform should support Convergent Charging where the charging for both Prepaid & Postpaid subscribers will be sent to the same Charging system.

7.16 The Platform should be able to integrate with multiple IN instances in a load-sharing/Active-Standby manner.

7.17 The vendor is required to share details of the charging interfaces supported along with details of different message flows, business logic supported, parameters passed in charging requests etc.

7.18 Appropriate logs should be created for all the transactions.

7.19 All Logs needs to be maintained as per the prevailing TRAI regulations

7.20 The CDR file should consist of detailed information for each transaction corresponding to the service.

7.21 CDR should be generated for every Transaction done on the Platform e.g. PRBT Service Activation/Deactivation, PRBT Selection & Change.

7.22 The CDR files should be created in Flat File (Text), ASCII, Binary & ASN.1 format as per requirements raised by BSNL during Project Phase.

7.23 It should be possible to define and change the CDR generation format.

7.24 The CDR generation should be configurable by Time, date, no. of records per file etc.

7.25 The CDR file name should contain the Time & Date along with a unique incremental sequence number.

7.26 The files being processed instantly should have some indication in the file name indicating the same.

7.27 The system should support sFTP transfer of CDR files to configured external systems via the configurable Push & Pull mechanisms.

7.28 It should be possible to store CDRs locally on the platform for a period of 30 days, post which it should be transferred to configured external systems.

7.29 The vendor should share the Platform CDR specifications, including the fields available in each CDR.

7.30 Flexible CDRs: It should be possible to configure the fields that should be present in the CDR.

7.31 Billing system should be capable of integrating with third party payment gateway partners for credit card billing

7.32 Billing system should be able to generate unique key for integrating with any third party consent gateway system to meet the local regulatory requirements.

8 *Operations, Administration & Maintenance (OAM)*

8.1 The operation & maintenance of the requisite hardware, software and/or application server(s) on 24X7X365 basis shall be done by a dedicated team of the solution provider

at its own costs. It shall include the regular monitoring & updation of the content /services based on market scenario /trends, as per customers' tastes & preferences and/or as desired by BSNL.

8.2 The proposed solution (Hardware, Software components) should provide 99.5% service availability.

8.3 The Failure of any single component in the solution should not lead to any service downtime.

8.4 Capacity Expansion or Hardware expansion should not lead to any service downtime.

8.5 The solution should have provisions for configuring and monitoring the system resources – E1s, CPUs, memory utilization, Disks etc and software processes – application level, OS level, third party products etc

8.6 The solution should detail Fault/Alarm Management, Performance Management and security Management functionalities and process that would be put in place to ensure SLA compliance and security of the systems and solution.

9. ***Capability in Migration of services/data from platform of old PRBT platform to VASP's platform:***

The VASPs system/server should be capable of migration of services that needs to be done without major disruption of service to the subscribers of BSNL. There should not be any change in call behavior, content or any other user experience as being provided to PRBT subscribers by old PRBT platform provider. Any additional features/services being offered to existing subscribers may only be launched after due approval from BSNL. The migration needs to be done in one of the following ways post analyzing the risks and approval from BSNL

9.1 Exiting PRBT Vendors will share customer profile, the historical data related to customers like Mobile number, date of activation, songs with lyrics etc., circle/ zone wise, with BSNL as well as new successful PRBT Vendors.

9.2 The new VASP/PRBT Vendors will be given all existing PRBT subscribers base data immediately after selection of new VASP by existing PRBT Vendors. However, BSNL can't ensure completeness and accuracy of such data. New VASP has to make its own arrangement to validate the data as provided by existing PRBT Vendors and ensure smooth migration.

9.3 New PRBT vendor, within one week time of receiving of such data will ensure migration of these customer without disruption of the services to the subscribers/customer of BSNL

9.4 To further ensure, that there are no customer complaints, all PRBT customers may be given option to select a song of their own choice free of cost within 48 hours of transferring their data from old platform to new platform. A SMS in this regard would be send to all such PRBT subscribers by new PRBT Vendors with a message that there services has been shifted to new platform, subscribers experiencing problem may change their song free of cost once within 48 hours. The period of 48 hours may be further reduced based on accuracy of migration. The options of song change have to be given to all subscribers irrespective of facts whether there song has been migrated correctly or not. However, above free service of song change may be withdrawn if new VASP certify accurate migration of data and satisfies the BSNL.

9.5   During transition period new and outgoing PRBT Vendors have to co-exist and shall be governed by their respective agreements. The exact period of coexistence shall be decided by BSNL based on success of migration process.

9.6   Old PRBT Vendors will not add new subscribers after the commissioning of platforms of new PRBT Vendors.

9.7   In case any complaint of wrong activation is received, the new PRBT vendor has to bear the complete cost of refund including the Taxes.

9.8   To mitigate such problems in new agreement appropriate measures like inclusion of Migration clause etc. may be taken.

10. *Continuity of services:* VASPs has to ensure that all data required for migration is handed over to BSNL in format as prescribed by BSNL. The VASP has to extend all out help to maintain continuity of services. VASP may be required to provide services even after the termination/end of the agreement to maintain the services for the period as decided by BSNL.
This clause shall survive the termination, exclusivity and expiry of the Agreement.

11. *Third party integration*: the solution provider shall allow the third party to integrate their equipment to its PRBT platform so that services like Ad RBT and any other content oriented services or any other content Provider which BSNL wants to incorporate with its normal PRBT service/ PRBT platform may be provided. In addition to integration with third party content servers, solution must be capable of integrating third party applications for provisioning. Such integration may be effected within the time line as prescribed by BSNL. The revenue share to VASP for such arrangements shall be finalized in consultation with VASP. However, in this regard BSNL's decision shall be final.

12. *Miscellaneous*: Any other activity (ies) necessary for the smooth implementation of the Project. Further, the solution provider shall undertake to develop and enhance the services to meet the changing needs of BSNL, the changing technologies and changing regulatory directives or any relevant standard pertaining to the solution. The solution provider shall have the necessary technical in-house expertise to undertake such activities.

13. *Provisioning of Services*: The PRBT Platform should support the following requirements from provisioning perspective:

13.1 The system should support provisioning of subscribers.

13.2 It should be possible to create, delete, modify & retrieve a subscriber's stored profile from the multiple provisioning interfaces provided.

13.3 It should be possible to send a Welcome SMS once the subscriber is provisioned.

13.4 The Platform should be capable of integrating with CVPS and complying with all existing regulations related to provisioning of VAS services in India.

13.5 The Platform should support real-time provisioning of subscribers from a CRM/provisioning system.

13.6 The Platform should have an Open/XML based interface for provisioning.

13.7 The system should allow provisioning requests only from Trusted IPs, which are configured on the system by System Admin.

13.8 For Bulk provisioning, a CSV file should be uploaded to the system with all relevant parameters. Eg: Corporate tunes

13.9 It should be possible to do bulk configuration via a web console for use by BSNL.

13.10 Each CSV file can contain commands for Service Activation, PRBT Assignment/Change, Service Deactivation & Modification of Subscriber profile.

13.11 The platform should offer as FTP interface for transferring files consisting of Bulk provisioning commands.

13.12 It should be possible to provision the subscribers via the customer care terminals with all relevant parameters for a service.

13.13 It should be possible to define appropriate role based access levels for different Customer Care (CC) executives whereby authorized CC executives are allowed to provision new subscribers in the system.

13.14 A web based customer service interface should be provided, which enables customer service to retrieve, create a subscriber, modify any field one or more fields in the subscriber profile and also delete the subscriber if required.

13.15 Customer service users will be created with profiles allowing them to log on to the service, where all interaction is logged on the system against their username.

13.16 The customer service interface allows authorized customer service personnel to change any field in the subscriber's profile.

13.17 The PRBT system needs to support integration with Consent gateway and CVPS at BSNL for all user initiated activation of the service through channels like IVR, SMS etc.

13.18 Reports or database should indicate when subscriber(s) were initially provisioned on the system, if there is a creation/modification/deletion of the profile, the last modification date should be recorded in the subscriber database.

13.19 Provisioning logs should be made available, covering among others, creation, modification and deletion of subscribers from the system.

13.20 Logs needs to be stored and be made available as per the prevailing TRAI guidelines.

14. *Platform and Engineering Requirements***:**

The PRBT platform should support the following Platform and Engineering requirements:

14.1 The system should support redundancy for example N+1, at least for all the application & frond-end servers.

14.2 On the real-time Application Servers, multiple instances should be used to avoid the failure of one process that could bring the Application Server down.

14.3 At Infrastructure Layer, mirrored disks should protect the data from corruption. Vendor should specify the Mirroring technology used.

14.4 Multiple physical (Ethernet) interfaces should connect the server to a single external LAN switch.

14.5   If a single server is used, it should connect to multiple IP routers.

14.6   It should be possible to restart only one system/server without affecting the entire system functionality.

14.7   All platforms should be High Available platforms with at least 99.5% availability.

14.8   No single element / application failure should result in outage of services.

14.9   The Platform needs to support Load balancing as required across different interfaces/nodes

14.10 The system should be highly scalable. It should be possible to add additional servers horizontally without any downtime of service/platform.

14.11 The addition of any Application Server should not result in the loss of significant resources on any other node (in terms of computing power, memory, communication resources).

14.12 Expansion nodes may be placed at the same location or may be kept at different locations.

14.13 Changes within one layer (e.g. application) should NOT impact other database objects (e.g. CDR's, subscriber provisioning commands).

14.14 Software upgrades should be supplied as "packages" containing the multiple components required to introduce a given functionality.

14.15 It should always be possible to check the full list of installed packages on the servers.

14.16 Different software versions should be according to a clear and unambiguous definition of software versioning scheme.

14.17 Version numbers should be given to software components.

14.18 A well document procedure to announce the end-of-life (EOL) of a version or the component itself should be followed.

14.19 Operator specific updates will be delivered / installed for free and without intervention from the operator.

14.20 The Platform should support backward compatibility from features & functionalities perspective.

14.21 New software packages should be able to be installed in advance, without removing current components and versions being used in production.

14.22 Platform should support periodic backup. Vendor should provide details of the various backup mechanisms available on the platform.

14.23 Platform should support restoration using existing backups. The Vendor should provide details of a typical data recovery & associated process.

14.24 Remote access to the PRBT Platform should happen through a single entry point or at least through means of a single sign-on (SSO) procedure.

14.25 It should not be allowed to generate trivial passwords to the system.

14.26 There should be a separate module taking care of reporting, which enables generation of reports without impacting the service performance.

14.27 Periodic, triggered and on-demand reports should be available to inform the operator about the uptake of communication and value added services, both in terms of usage and subscription.

14.28 As a minimum, this should start from the number of subscribers having subscribed via a given communication channel, to a given service.

14.29 Reporting should allow the early detection of a decrease in usage based on certain parameters.

14.30 The Reports should be accessible from a user friendly GUI.

14.31 The Reports should be available as Flat files (Txt), CSV & PDF formats.

14.32 The Reporting system should have the flexibility to enable creation of additional reports as required by BSNL.

14.33 The Platform should support scheduled transfer of automated Reports to configured Email IDs based on the report.

14.34 The Platform should support generation of near real-time reports/GUI which enables BSNL to track the service usage. (Example - Reports within 1-2 hrs)

14.35 The solution shall be capable to provide all meta data (content ID/ content Name / category / label & other data etc.) on quarterly basis which is essential for the smooth running of complete PRBT services, failing which BG of the Solution provider shall be forfeited.

15. Dimensioning: Detail of Customer base zone vise.

BSNL's Cellular Mobile Operations are divided into four Zones viz. East, West, North and South, comprising of the Licensed Service Areas as defined below.

Zone	Licensed service areas	No. of Subscribers (in Mn)
East	Assam , Bihar including Jharkhand , Kolkata Metro, Orissa, West Bengal including A&N, North East (NE-I including NE-II)	18.42
West	Gujarat, Maharashtra, Madhya Pradesh including Chhattisgarh	18.47
North	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, UP (East), UP (West) including Uttarakhand	35.27
South	Andhra Pradesh including Telangana, Karnataka, Kerala, Tamil Nadu including Chennai	46.70

The system should be dimensioned based on the following parameters:

  i.   Terminating BHCA per subscriber 1.0

  ii.   Mean Holding Time for the IP/IVR Player 15 Sec

  iii.   Mean Holding time for the IVR 120 sec

  iv.   Number of calls on IVR per user per month is 3

16. *Requirements:*

16.1   All assumptions and details regarding dimensioning of the solution should be provided as part of the proposal.

16.2   The solution being proposed should be scalable to the mentioned subscriber base

16.3   The Bill of Materials provided needs to be separate for each zone.

16.4   Vendors should clearly propose which of the components of the solution would be centralized and which would be de-centralized.

16.5   Vendors should propose in detail the configuration required at various nodes or interfaces like MSC/HLR/IN/CRM/O&M/ Provisioning interfaces/Consent Gateways etc.

16.6   The system needs to be dimensioned at a loading factor of 70%.

16.7   The Bill of Materials should clearly provide details of all the hardware like Racks, servers, cards, storages, E1's, accessories etc and software like Operating system, Database, antivirus, other third party software and licenses that would be used on the system.

16.8   The rack space, power and other network requirements needs to be clearly documented as part of the BOM.