

Re: Comments on the Consultation Paper dated 29th January 2020 on “Provision of Cellular backhaul connectivity via Satellite through VSAT under Commercial VSAT CUG Service Authorization”

From: Dua Consulting

Date: 11th March 2020

1. Background

- 1.1 Very Small Aperture Terminal (VSAT) services refer to communication services provided using Satellite as the medium and VSAT as the terminals. A typical satellite communication link comprises of a ground segment, which is a Satellite Terminal (VSAT Terminal), a hub which acts as a switch to route & connect these terminals, which is also on ground and the space segment i.e. the satellite.
- 1.2 VSAT license is granted by the Department of Telecommunications (DoT) on non-exclusive basis, to VSAT service providers to establish, install, operate and maintain VSAT Closed Users Group (CUG) Domestic Data Network service via INSAT/GSAT Satellite System, within territorial boundary of India, for a period of 20 years, extendable by 10 years at a time.
- 1.3 For satellite based communication, the link is established from the ground segment by using VSAT, which is uplinked to satellite where one of the transponders sends back the signal to the hub which in turn again sends back the signal to the transponder from where it is sent to the receiving VSAT terminal. This is called two hop communication.
- 1.4 There is hub less terminals also where function of hub i.e. switching is done at the satellite itself. This is called single hop communication, this way a network of VSAT Terminal can be created. The technical parameters to establish a link specify the frequencies of operation for uplink and downlink, the size of the dish antenna, the location of VSAT terminal, permissible bandwidth for the communication links and permissible power output by each Terminal.
- 1.5 The location of Terminals is to be approved by Standing Advisory Committee on Frequency Allocation (SACFA). This Committee gives approval for frequency of

operation, location of hub and the VSAT Terminals and the maximum permissible power output of the Terminal. Clearance is required for each site before a Terminal can establish link.

1.6 Several terminals communicating with each other with no outside communication to another network are termed as a Closed User Group (CUG).

2. Backhaul under the Present licensing regime

2.1 Backhaul provisioning may be done by the telecom service provider under the Access Service Authorization.

2.2 The telecom service provider providing the mobile services under the Access Service Authorizations are permitted to obtain the backhaul bandwidth from any of the National Long Distance (NLD) service providers. For this purpose, the licensee is permitted to use the existing VSAT Hub set up under any of the commercial license/ authorisation under unified license.

2.3 The Commercial VSAT CUG service licensees, under the present framework are not permitted to provide backhaul connectivity to the mobile operators. Further, licensee having both NLD Service Authorization and Commercial VSAT CUG Service Authorization are not permitted to share the VSAT Hub installed to provide the backhaul bandwidth under the NLD service authorization. Additionally, the VSAT Hub must be in the same service area where the Main Switching Centre (MSC) is located.

3. Our suggestions

3.1 UL for Internet Service authorization provides that Internet Service to any VSAT Service subscriber can be provided, if the VSAT is located within the Service area of the Licensee. For this purpose, a direct interconnection of VSAT Network Hub through leased line obtained from an authorized service provider to the Licensee's node/server shall be permitted only for the Internet traffic. The Licensee shall provide to the Licensor a monthly statement of VSAT subscribers served with their locations and details of leased line interconnection with the VSAT Hub. The VSAT Hub, however, need not be in the service area of the Licensee. Commercial VSAT service providers have large IP enabled terminals and can be used as backhaul for cellular networks very effectively. Many of these terminals can be used for the purpose of cellular backhaul apart from providing data connectivity,

which may reduce the cost of setting up a dedicated infrastructure to provide infrastructure in nearby areas.

- 3.2 There exists a requirement for utilizing VSAT capabilities & allowing backhaul for connecting BTS/ Mobile network in far flung areas under the commercial VSAT CUG license. It is felt that in the context of extending the backhaul connectivity in far-flung and hitherto unconnected areas, the VSAT technological capability should not be restricted.
- 3.3 The government has made the license fees in terms of AGR uniform across both NLD and VSAT service. The only differentiating factor being the entry fee for unified license which is charged for an NLD operator as opposed to the VSAT operator.
- 3.4 Satellite backhaul makes it feasible to offer cellular services in areas that are impossible or prohibitively expensive to reach using traditional terrestrial means, such as fibre, cable or microwave. India, in order to have strengthened networks need to rely on backhaul cellular traffic for their most difficult-to-reach service areas, and they are using the service to carry 2G, 3G and 4G/LTE traffic across hundreds of sites.
- 3.5 VSAT systems have not grown as rapidly in the rest of the world as in the USA. This is mainly because of the regulatory environments. In order to make the situation in India approach the situation in the USA, the Indian telecom community needs to expedite extending liberal regulations to new players that are not stalled only on the reason of non-application as a National Long distance service provider. Applicable charges may be added on an annual basis pursuant to operation of the VSAT service. Future telecommunication systems are expected to co-exist with different backhauling nodes such as terrestrial or satellite systems. Satellite connectivity can add flexibility to backhauling networks and provide an alternative route for transmission. This move may also be supplemented by the NDCP- 2018 objectives which include a key mention on strengthening satellite communications in India.
- 3.6 Future trends in VSAT networks will be driven by lowering costs of the VSAT terminals, hub stations and installation of these networks; Providing a greater range of service, including voice and compressed video services; Providing networks that are more user-friendly and flexible in terms of operations, administration and maintenance - Integration of these networks with a larger variety and more advanced terrestrial networks including fibre optic networks, newer switching equipment and ISDN.

4. Question wise response

Q1. Keeping in view the connectivity requirements in remote and difficult areas, should the Commercial VSAT CUG service provider be permitted to provide backhaul connectivity for mobile services and Wi-Fi hotspots via Satellite? Please justify your answer.

Q2. Whether the scope of Commercial VSAT CUG Service Authorization be enhanced under both Unified License and UL(VNO) license to enable the provision of the said backhaul connectivity? Please justify your answer.

VSAT is a very useful backhaul mechanism for telecom networks (in difficult terrain and remote areas) and for ensuring connectivity in any remote area in a cost-effective manner, community wi-fi hotspot networks via satellite may be used by large enterprises as a backup connection for their mission critical applications and as a primary network for the terrestrially unreachable locations. Provisioning of the service in the above-mentioned scenario may be done through the network of NLD license or the NLD Authorization holder under Unified License (UL). The compliances in such a situation should not be circumvented and should be as per applicable UL regime for NLD providers.

The service provided by a UL (VNO) in case of Commercial VSAT CUG Service Authorization being provided should be equivalent of NLD operations, and, to that extent, the UL (VNO) for NLD license will have to be modified for provision of backhaul services.

Q3. Should the licensee having authorization for both Commercial VSAT CUG and NLD services be allowed to share VSAT Hub & VSAT terminals for the purpose of providing authorized services? Please justify your answer.

We understand that the current regulatory framework does not allow authorization for both Commercial VSAT CUG and NLD services to share VSAT terminal. This may be on the pretext that the very nature of a CUG would imply that their hub might not have connectivity to various telecom service providers (depending on the services provided). The rules would need according modification in order to be connected to the remote site and then connect to the NLD port of the TSP.

Q4. Whether the licensee should be permitted to share its own active and passive infrastructure for providing various services authorized to it under the other service authorization of UL and/ or other licenses? [In other words, whether clause 4.3 of Chapter -VIII (Access Service authorization) be made applicable for all other

authorizations also] Is there a need to impose any restrictions? Please enumerate and justify your answer.

As long as the license seeking sharing of active or passive infrastructure specially relates to NLD, the only restriction which could be imposed is to ensure that they possess the license to provide such a service

Q5. Whether formula-based spectrum charging mechanism for VSAT services in NLD/Access license is adequate and appropriate? If not, whether spectrum charging for VSAT services in NLD/Access service license should be made on AGR basis instead of existing formula basis mechanism? Whether it will require accounting/ revenue separation for satellite based VSAT services under NLD/Access license? Please elaborate and provide proper justification.

Many Commercial VSAT CUG licensees have existing network of many terminals across the country which may be used for providing the backhaul connectivity, if suitable enabling provisions are made in the Commercial VSAT CUG Authorization.

It is necessary to ensure a simplified charging mechanism for VSAT service in order to facilitate ease of doing business. However, the method of calculating SUC Charges (Royalty Charges) towards frequency authorizations will result in different charges under the Commercial VSAT CUG Service Authorizations and NLD Service Authorization.

It may be noted that in order to enable the VSAT CUG licenses, the existing mechanism need not be disturbed. In the context of backhaul service, the calculation of NLD becomes measurable and must be accordingly calculated as per the AGR. This system may not be relevant in today's concept since the applicable AGR for VSAT services is the same as the applicable AGR for NLD operators. It shall be important to regularly update the revenue separation between services under the NLD service vis-à-vis services under the VSAT model. However, such provisioning in respective license/ authorization requires accounting separation in the revenue reports of the license/ authorization holder

In addition to separate accounting, a consolidated statement should also be provided by the NLD operator in order to enable the government to comprehensively assess the provided services and tap if there are any loopholes or gaps in the provision of service by the TSP and the VSAT. While we are in favour of introducing liberal regimes, it must also be ensured that any undue advantage taken of such enabling provisions should be heavily penalised.

Q6. Please give your comments on any related matter not covered in this Consultation Paper.

We understand that the VSAT services shall address only a miniscule traffic on no connectivity areas such as islands, or hilly terrains. Steps should be taken to encourage collaborative steps. VSAT services are being promoted only in those areas where there is no commercial NLD service available. The question of using this facility when NLD service exists would not arise and a VSAT network may not be equipped to share the services shared by cables or fibres. It is highly unlikely to have any misuse of commercial VSAT services in terms of competing with UL operators.