Consultation Paper No. 15/2014

**Telecom Regulatory Authority of India**

# Consultation Paper

**on**

# 'Delinking of the license for networks from delivery of services by way of Virtual Network Operators'

**5th December, 2014**

**Mahanagar Doorsanchar Bhawan**
**Jawahar Lal Nehru Marg**
**New Delhi-110002**

**Written Comments on the Consultation Paper are invited from the stakeholders by 5th January, 2015 and counter-comments by 12th January, 2015. No extension of time will be granted. The comments and counter-comments may be sent, preferably in electronic form, to Shri Sanjeev Banzal, Advisor (Networks, Spectrum and Licensing), TRAI on the Email-Id advmn@trai.gov.in Comments and counter-comments will be posted on TRAI's website www.trai.gov.in.**

**For any clarification/ information, Shri Sanjeev Banzal, Advisor (Networks, Spectrum and Licensing), TRAI, may be contacted at Telephone No. +91-11-23210481**

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# CHAPTER-I: INTRODUCTION

1.1 Telecommunications have been recognized the world-over as an important tool for socio-economic development of a nation. It has become core infrastructure required for rapid growth and modernisation of various sectors of the economy. There has been a phenomenal growth of the telecom sector in terms of subscribers and revenues over the past one and a half decades in India. Today, India is the second-largest and one of the fastest growing telecom markets in the world. The Indian telecom industry has grown from a tele-density of 3.58% in March 2001 to 76.75% in September 2014. This great leap in both the number of subscribers and revenues from telecom services has contributed significantly to the growth in GDP and employment.

1.2 The Indian telecom sector has undergone a major process of transformation through significant policy reforms, beginning with the New Telecom Policy (NTP) 1994 and carried forward under NTP 1999. As a result of reforms and other technological advancements, the number of telephone subscriptions rose from 41 million at the end of December 2001 to 965 million by June,2012.

1.3 The National Telecom Policy 2012(NTP-2012) was announced in June, 2012 with the objective to make available affordable and effective communication facilities to the citizens. The vision of the NTP-2012 is to transform the country into an empowered and inclusive knowledge-based society, using telecom as a platform. One of the objectives of NTP-2012 is to deliver high quality seamless voice, data, multimedia and broadcasting services on converged networks for enhanced service delivery to provide superior experience to users.

1.4 One of the strategies in the NTP-2012 is to move towards a Unified Licence (UL) regime to exploit the attendant benefits of convergence,

spectrum liberalisation and facilitate delinking of the licensing of Networks from the delivery of Services so as to enable the Telecom Service Providers (TSPs) to optimally and efficiently utilise their networks and spectrum by sharing active and passive infrastructure. Another strategy is to facilitate resale at the service level, both wholesale and retail, for example, by introduction of virtual operators – in tune with the need for promoting robust competition while ensuring due compliance with security and other license related obligations.

1.5 Pursuant to above stated policy, on 19th August, 2013, the Department of Telecommunication (DoT), issued guidelines for grant of UL. Modified guidelines (comprehensive) were issued on 8th January 2014, wherein spectrum allocation has been delinked from the License and it has been mandated to obtain UL for any one or more of the services listed below:

a. Unified License (All Services)
b. Access Service (Service Area-wise)
c. Internet Service (Category-A with All India jurisdiction)
d. Internet Service ( Category-B with jurisdiction in a Service Area)
e. Internet Service ( Category-C with jurisdiction in a Secondary Switching Area)
f. National Long Distance (NLD) Service
g. International Long Distance (ILD) Service
h. Global Mobile Personal Communication by Satellite (GMPCS) Service
i. Public Mobile Radio Trunking Service (PMRTS)Service
j. Very Small Aperture Terminal (VSAT) Closed User Group (CUG) Service
k. INSAT MSS-Reporting (MSS-R) Service.
l. Resale of International Private Leased Circuit (IPLC) Service

1.6 The DoT also decided (in 2013) that the UL may be introduced in two phases with the delinking of licensing for networks from the delivery of services being taken up in a subsequent phase.

1.7 In this backdrop, on 7th July 2014 the DoT sent a reference to the Authority seeking its recommendations on delinking of licenses for networks from the delivery of services by way of virtual network operators (VNOs), as well as associated issues of definition of Adjusted Gross Revenue under the UL regime (**Annexure-I**).

1.8 For the telecom sector, which is highly capital intensive and where pay-offs are realized over a long time period, it is necessary that regulatory policies are predictable and stable. This reference from the DoT has the potential to change the entire licensing framework in India. Since the UL has been introduced only recently, it was not very clear as to why such a reference has been made so soon after the UL was introduced. The rationale for changing the licensing regime was not apparent. Further, in the changed regime, would existing Telecom Service Providers (TSPs), who own their network and provide services to customers, have to obtain separate licenses for provisioning of network and delivery of services or would their existing license be treated as network and service delivery license etc?

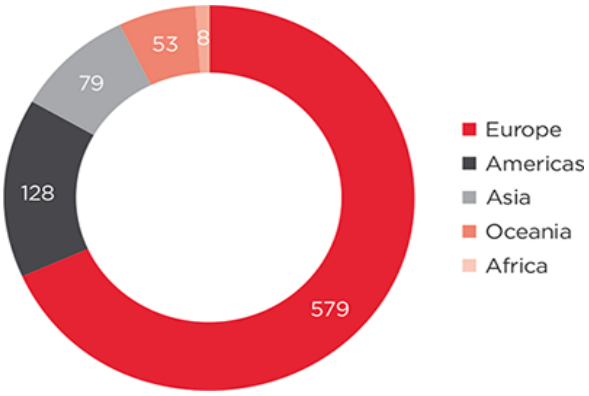
1.9 In order to have detailed deliberations on the matter, the Authority issued a Pre-Consultation Paper (PCP) on 3rd September 2014, highlighting some of the issues associated with the proposed licensing framework and solicited inputs and comments of the stakeholders on these issues or any other issues involved in the proposed framework. The last date of the comments was 17th September 2014, which was extended to 7th October,2014 on the request of the industry. The Authority received comments/inputs from 23 stakeholders. These are available on TRAI's website www.trai.gov.in.

1.10 In their comments to the PCP, many stakeholders have expressed their apprehension that frequent changes in the licensing regime bring in uncertainty and instability in policies in a sector where gestation periods are long. Concerns have also been raised on the licensing status of existing TSPs if a policy of delinking networks and services is implemented.

1.11 It is pertinent to note that VNOs are prevalent in a number of developed countries. They are present in many sub-sectors like basic connectivity, voice services, data services, content services etc. However, Mobile Virtual Network Operators (MVNOs) are the most prominent and the business model based on MVNOs has been comparatively successful in a number of countries. According to GSMA Intelligence[1] report, as of May 2014, globally, mobile network operators (MNOs) host 943 Mobile Virtual Network Operators (MVNOs) and 255 MNO sub-brands. This represents a total of almost 1,200 mobile service providers worldwide hosted by MNOs, up from 1,036 in 2012.

1.12 Research shows that MVNOs remain most prevalent in mature markets where penetration (based on connections) has surpassed 100%. Europe is home to more than two thirds of global MVNOs (579), followed by the Americas (128) and Asia (79). In contrast, the MVNO sector is in its infancy in African markets with just eight MVNOs across the continent.

[1] https://gsmaintelligence.com/analysis/2014/06/the-global-mvno-landscape-201214/433/




**Global MVNO split by region, 2014**

*Source: GSMA Intelligence*

1.13 Informa Telecoms & Media has forecast that the MVNO market will reach 270 million subscriptions by the end of 2018, a significant increase on the MVNO subscription base of approximately 117 million at the end of 2012. By the end of 2018, MVNOs will be serving over 3% of the world's subscriptions[2].

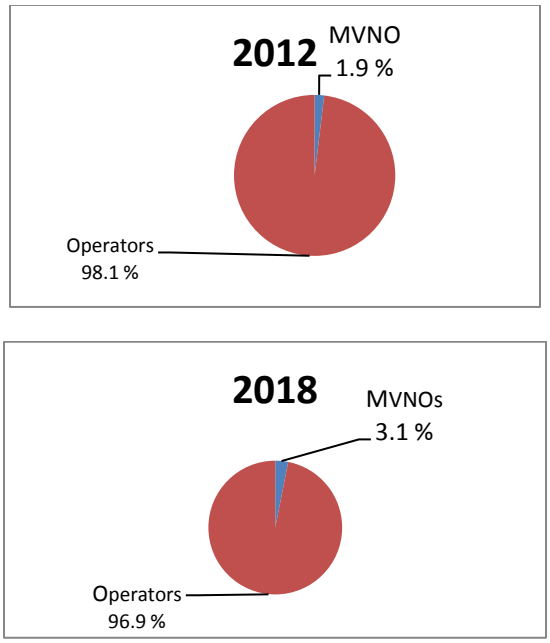



**Chart 1.1: MVNO subscriptions in 2012 and 2018[3]**

[2] http://www.amdocs.com/products/oss/Documents/the-multifaceted-world-of-MVNOs-WP.pdf

[3] Source: Informa Telecoms & Media; Note - Figures refer to year-end

1.14 To keep pace with the development of MVNOs the world over, the Authority had given its recommendations for the introduction of MVNOs in India in 2008. Subsequently, the Authority sent its recommendations for introduction of the UL regime in May 2010. To align its recommendations on MVNOs with the UL regime, the Authority, revisited and revised some of its recommendations of 2008 and sent comprehensive recommendations on MVNOs as a part of its recommendations on 'Telecom Infrastructure Policy' in April 2011. Nearly 4 years have elapsed since the revised recommendations were made. However, to date a policy on MVNOs has not seen the light of day.

1.15 In the meanwhile there have been technological developments in the areas of efficient use of spectrum, access technologies and coding techniques etc. which have made it possible to deliver a higher amount of data over the mobile network. The move towards packet based transmission has made convergence a reality where several services can be given through one underlying network. There have been innovations in the field of application services. Applications like play stores, devices like smart phones, iPad, and services like e-commerce, m-commerce etc. and Over-the-Top(OTT) services like whatsApp have made broadband a must-have for a user.

1.16 Convergence in the broadband world will have implications that the traditional link between network technology and the service that is provided over the network is weakened or disappears completely. That is to say, going forward, different types of networks are more likely to be substitutable for each other. There will be a need to exploit improved capabilities of networks by way of bundled offerings viz. dual, triple and quad play services.

1.17 These technological developments have thrown into question the traditional regulatory system and raised new question on how to deal with the growing pressure to adopt a converged regulatory regime to meet the challenges of these converging technologies.

1.18 In the light of the regulatory issues that flow from convergence and the transition to an Next Generation Network(NGN) environment, the world over regulators have begun to adapt the traditional, service-specific approach to authorizations. As per ICT toolkits[4], there are now three broad approaches to authorizations in the ICT sector:

a) **Service-specific authorizations:** These authorizations allow the licensee to provide a specific type of service. Usually, the licensee is required to use a specific type of network and technological infrastructure. However, some service-specific authorization regimes are technology neutral (e.g. the fixed and mobile services authorization regimes in Saudi Arabia and the Canadian basic international telecom services licences). These types of authorizations are sometimes issued as individual licences (particularly in developing and transitional economies) and sometimes issued as general authorizations.

b) **Unified (or global) authorizations:** These authorizations are technology and service neutral. They allow licensees to provide all forms of services under the umbrella of a single authorization, using any type of communications infrastructure and technology capable of delivering the desired service. In most countries, unified authorizations are issued as individual licences. However, in some countries, the process for issuing the unified authorization blends aspects of general authorization processes and competitive licensing regimes. These hybrid processes can best be described as non-competitive individual licensing processes: while applicants do not compete for a limited number of authorizations,

[4] www.ictregulationtoolkit.org/sectionexport/word/3.8

they must meet a variety of criteria to qualify for a licence and their applications are subject to close regulatory scrutiny.

c) **Multi-service authorizations:** These authorizations allow service providers to offer multiple services under the umbrella of a single authorization, using any type of communications infrastructure and technology capable of delivering the services in question. Like unified authorizations, multi-service authorizations are technology neutral. However, multi-service authorizations are more limited than unified authorizations; licensees are permitted to provide any of a designated set of services, but not any and all services. Multi-service authorizations are sometimes issued as general authorizations and, in other cases, are issued as individual licences. It is not uncommon for a country to have both general authorization regimes and individual licence regimes for their multi-service authorizations. Individual multi-service authorizations are often issued using a non-competitive individual licensing process.

1.19 In India, the present UL regime is a multi-service, multi-service area authorization. There are many variants of multi-service area authorizations which are suitable for meeting the challenges of convergence. Some examples from other countries are:

**(a) Malaysia**

Malaysia has moved from a system of 31 different types of service-specific authorizations to four different multi-service authorizations. The four categories of authorizations are:

- Network Facility Provider (NFP) Licences,
- Network Service Provider (NSP) Licences,
- Application Service Provider (ASP) Licences; and
- Content Application Service Provider (CASP) Licences.

NFP Licences authorise licensees to provide network facilities. NFP licensees include owners of satellite earth stations, fibre optic cables,

communications lines and exchanges, radio communication and transmission equipment, mobile communication base stations and broadcasting towers and equipment. NSP licensees are authorised to provide network services such as basic connectivity and bandwidth that support a variety of applications. Under an ASP Licence, a licensee may provide various application services such as voice services, data services, Internet access services, and VoIP. CASP Licences are a special subset of ASP Licences. CASP licensees are authorized to provide traditional broadcast services and other content-based services such as online publishing and information services.

**(b) Singapore**

The authorization regime in Singapore features two broad categories of authorizations:

- Facilities-Based Operators (FBO) Licences; and
- Services-Based Operators (SBO) Licences.

FBO Licences apply to the deployment and/or operation of any form of telecom network, systems, or facilities that are used by any person to provide telecom and/or broadcasting services to third parties. These third parties may include other licensed telecom operators, business customers, or the general public. All FBO Licences are individual authorizations.

SBO Licences must be held by operators who intend to lease telecom network elements (e.g., transmission capacity and switching services) from FBO licensees in order to provide their own telecom services or to resell services obtained from FBO licensees to any third person. SBO Licences are further sub-divided into the SBO (Individual) Licence category and the SBO (Class) Licence category. The distinction between these two sub-categories relates to the scope of the operations and the nature of the services being offered.

**(c)Trinidad and Tobago**

Trinidad and Tobago's authorization regime features five types of authorizations namely Network-Only, Network-Service, Virtual Network-Service, Telecom Service, and Broadcasting Service. First two are network based and remaining are service based licenses.

1.20 Transitioning existing licensees to a new licensing/authorization framework is an important matter even when there may not be substantial differences between the terms and conditions of existing authorizations and those of the new unified or multi-service authorizations. Maintaining different authorization frameworks imposes costs and administrative burdens on the licensor/regulator. Transparency, efficiency, and regulatory certainty are all enhanced when all service providers are subject to the same authorization regime.

1.21 This Consultation Paper (CP) analyses/deliberates on (a) the need to align the existing licensing framework to changed realities and (b) whether the existing framework will be able to meet the challenges posed by present and future technological developments and innovations in the ICT field. The entire aim of this consultation exercise is about leveraging the power of technologies-especially mobile and broadband technologies- for the benefit of Indian consumers.

1.22 The DoT in its reference has sought recommendations of the Authority for delinking of licenses for networks from the delivery of services by way of VNOs including associated issues of the definition of Adjusted Gross Revenue under the UL regime. A consultation process on the definition of the revenue base (AGR) for the reckoning of license fee and spectrum usage charges is already in progress; a CP on this was issued on 31st July 2014. Therefore, this CP is limited to the issues related to delinking of licenses for networks from the delivery of services by way of VNOs.

1.23 Chapter-II deals with **Conceptual issues of VNOs**, Chapter-III deals with **Introduction of VNOs: Licensing issue**, Chapter-IV covers **Licensing provisions of VNOs,** Chapter-V reviews **International experience** from a number of countries, and Chapter-VI lists the **issues for the consultation**.

# CHAPTER-II: CONCEPTUAL ISSUES OF VNOs

2.1 In the PCP, it was stated that, while formulating NTP-2012, the DoT envisaged two categories of licenses:

(a) Network service operator (NSO) license; and

(b) Service Delivery Operator (SDO) license.

The NSO would be licensed to set up and maintain converged networks capable of delivering various types of services e.g. Voice, Data, Video, broadcast, IPTV, VAS etc. in a non-exclusive and non-discriminatory manner and the SDO would be licensed to deliver and/all services e.g. tele-services (voice, data, video), internet/broadband, broadcast services, IPTV, Value Added Service and content delivery services etc.

2.2 VNOs are SDO licensees, who do not own the underlying network(s) but rely on the network and support of the infrastructure providers, telecommunications suppliers/operators for providing telecom services to end users/customers. As these operators do not have their own networks, they are termed 'Virtual Network Operators'. VNOs can provide any telecom service being provided by the network providers' viz. tele-services (voice, data, video), internet/broadband, IPTV, Value Added Services, content delivery services etc. Presently, perhaps because of dominance of voice over other services, the most popular among VNOs are Mobile Virtual Network operators(MVNOs). Through the reference the DoT has envisaged the entry of VNOs for delivery of services by delinking them from the licensing of networks.

2.3 VNOs go by different names in different regions/countries across the world. In Saudi Arabia they are called 'Service Based Provider (SBP)' while in Singapore they are known as Services-Based Operator (SBO). An SBP in Saudi Arabia is a service provider who does not build or own a public telecommunications network and utilizes such networks from any Facilities-Based Provider (FBP) to offer Information and Communication

Technology (ICT) services to users. Similarly in Singapore, SBOs take telecommunication network elements (such as transmission capacity and switching services) on lease from any Facilities-Based Operator (FBO), licensed by the Infocomm Development Authority (IDA), to provide their own telecommunication services. Services-Based Operators (SBO) are also licensed by the IDA in Singapore. In Hong Kong, the SBOs refer to telecom service providers which rely on the fixed or mobile networks established by FBOs to provide their own telecom services. Examples from other countries are provided in Chapter-V.

2.4 The common thread in the aforementioned concepts/definitions is that VNOs have to rely on the network infrastructure of a network operator or a facility based operator who has sufficient leasable infrastructure to make it available to the service operator through a mutual agreement. In this CP, for the convenience MNOs, FBOs, FBPs and other network providers are clubbed and denoted as 'Network services operators(NSO)', while service delivery operators, SBOs etc have been clubbed and denoted as 'virtual network Operators (VNO)'.

## A. Need for Introduction of VNOs

### Competition Vs Utilisation

2.5 In the Indian telecom sector there are 7-13 access service licensees in various service areas at present. There are 37 NLD licensees (including 6 authorised under UL) though a few of them have deployed their own infrastructure, 29 ILD licensees (including 5 authorised under UL), more than 415 (including 65 authorised under UL) licensed ISPs, and 11 licensed VSAT operators of which 10 are operational. Most access service licensees are integrated TSPs providing access, long distance and internet/broadband services. They have built their own infrastructure and are providing services using either their own infrastructure or shared infrastructure.

2.6 It can be argued that there are a sufficient number of TSPs in various Licensed Service Areas (LSAs) and in various services segments; hence, it would be contended that there is no need for introduction of further competition by way of VNOs in service delivery. Equally, however, there is no denying the fact that there is still a wide 'Digital Divide' between urban and rural India. Urban teledensity has reached 147% (July'14), Rural teledensity has been lagging at around 45% (July'14) primarily because of the non-viable business case for providing services in rural areas. Access spectrum available with the Cellular Mobile Service Providers (CMSPs) is far less compared to operators in other countries. As a result, congestion is observed in urban areas while in rural areas, particularly in large LSAs, the telecom infrastructure remains under-utilised.

2.7 Contrary arguments can also be given for introduction of VNOs to serve niche segments, penetration of services particularly in rural areas to increase rural tele-density and to facilitate 'Digital India' programme. The present licensing regime in India permits operators to both lay the network and provide services. Because of technological developments, namely Convergence, IP networks, and Voice-over-IP etc, there could be a case for delinking the underlying networks from the provision of services i.e. there can be one set of operators dealing/providing networks while another set may deliver services. A VNO may serve a niche and untapped market thus enabling proliferation of services beyond what is currently provided by existing service providers.

2.8 The NTP-2012 states the objective to achieve 100% teledensity in rural areas and provide affordable and reliable broadband-on-demand:-

*" 2. Increase rural teledensity from the current level of around 39 to 70 by the year 2017 and 100 by the year 2020.*

*3. Provide affordable and reliable broadband-on-demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of at least 100 Mbps on demand."*

2.9 The Government of India (GoI) has recently unveiled a roadmap for implementation of one of the most ambitious and priority programmes known as 'Digital India'[5]. The Digital India programme aims to connect all *Gram Panchayats* by broadband, promote e-governance, and transform India into a connected knowledge economy. One project outlined under this programme is the creation of 'Broadband Highways'. The basic objective is to provide broadband coverage in rural areas to 2,50,000 *Gram Panchyats* (GPs) by 2016. The programme also envisages increased broadband penetration through VNOs for service delivery in urban areas and mandate communication infrastructure in new urban development and buildings.

2.10 Once the basic infrastructure using Optical Fibre Cable(OFC) is put in place, introduction of VNOs may help in quick and efficient utilization of this network and fulfill the objective of 'Digital India'. Therefore, in view of the foregoing paras (para 2.6 to 2.9), while deciding the need for VNOs in the sector, there could be a debate between level of competition in the sector Vs utilisation of existing network(s).

2.11 In their comments on the PCP, completely divergent views have been aired on the introduction of VNOs by the stakeholders. One set of stakeholders has argued that the introduction of VNOs will help in effective utilization of the assets created by the TSPs and help them to reduce their cost/opex. The other set of stakeholders has argued that the telecom industry is facing challenges of increasing debt, hyper competition, eroding margins, high duties/levies, etc. This has resulted

[5] http://pib.nic.in/newsite/erelease.aspx?relid=108926

in a situation where, despite the telecom sector being liberalized for the last 19 years, most TSPs have not yet made their return on capital. Delinking of licensing of networks from delivery of services may result in reduced incentives for investment by the network based operators. Therefore, in their opinion, the need of the hour is to introduce measures to facilitate market-based consolidation rather than create further fragmentation.

2.12 One set of existing service providers may perceive VNOs as competitors. In contrast, the other set may believe that VNOs will synergise their operations and add to their revenue stream and reach. Internationally, MVNOs are successful only when they served the niche segment and added to the revenue of the MNOs.

2.13 The foregoing discussion prompts the following:

**Q1. (a) Is there any need to introduce more competition in service delivery by the way of introduction of VNOs in the sector? If not, why not?**

**(b) If yes, is it the right time to introduce VNOs?**

**Q2. Will VNOs pose a threat to NSOs or will they complement their operations? Justify your answer.**

**Q3. How can effective utilization of existing infrastructure be improved? Can VNOs be a solution to achieve targets defined in NTP-2012 for rural density?**

### B. Services to be covered by VNOs

2.14 In case it is decided to introduce VNOs, the next question would be which services, from those available under UL, can be opened up to VNOs? VNOs are not new to the world and policies relating to VNOs have been put into effect in many countries. The Wireless mobile services

segment, being the main driver of telecom markets, the VNOs in many jurisdictions have focused mainly on Mobile Virtual Network Operator(MVNO). Many countries such as Malaysia, Singapore, Hong Kong, Saudi Arabia, South Africa, Botswana and Tanzania already have a separate licensing policy in place for VNOs.

2.15 The VNO model has been adopted in some countries for Satellite Communication. Satellite operators lease hub space to a VNO service provider. The service provider only need to purchase a line card to establish a High Throughput Satellite (HTS) service and has full control of its own network and end users. This is an attractive model for VNOs for lowering investments while getting quick access to the HTS market and expanding their network based on demand.

**TRAI's earlier recommendations on MVNO**

2.16 Worldwide, MVNOs are considered a preferred way to increase penetration and competition[6] in the market. Currently, there are hundreds of MVNOs operating across the world. In India, the Authority had made recommendations on MVNOs twice in the past, in 2008 and in 2011.

2.17 In its recommendations of August 2008 on 'Mobile Virtual Network Operator (MVNO)', the Authority recommended a framework for entry of MVNOs in the telecom sector. The intention was to introduce MVNOs as 'distinct service providers with its own licensing and regulatory framework'. In terms of the recommendations, the agreement between a MNO and an MVNO was to be driven by market forces and they were free to choose their business model. However, the agreement with the MNO had to be submitted before issuance of licence by DoT to the MVNO.

2.18 Through letter of 24th February 2009, the DoT sent a reference back on

[6] Most markets where MVNOs have been introduced have high concentration(Herfindahl-Hirschman Index>0.25) of MNOs

some of the recommendations; these were mostly related to procedural matters. Subsequently, on 25th February 2009, in a press release by the Ministry of Communication and IT, GoI, it was stated that:

> "*The Government has accepted the recommendations of the Telecom Regulatory Authority of India (TRAI) for introduction of Mobile Virtual Network Operators (MVNOs) Licensees in India. TRAI had made the recommendations on 6th August, 2008. The detailed guidelines for MVNO shall be issued by Department of Telecom (DoT) after it receives response from TRAI on some issues*".

The Authority sent back its reply to the DoT on 12th March, 2009.

2.19 Later, the Authority, in its recommendations on 'Telecom Infrastructure Policy' dated 12 April 2011, sent revised recommendations on MVNO. According to these recommendations any Unified Licensee without spectrum can work as an MVNO. Therefore, some of the earlier recommendations (of August 2008) became irrelevant. The salient recommendations on MVNO are given in **Annexure-II.**

2.20 Despite recommendations on MVNO twice by the Authority in 2008 and 2011, and acceptance of TRAI's advice more than five years ago (see para 2.18), to date a policy and guidelines have not been announced.

**IPLC and other services**

2.21 To promote competition and affordability in the International Private Leased Circuits (IPLC) segment, the GoI permitted the resale of IPLC and introduced a new category of License called Resale of IPLC Service License with effect from 24th September 2008. The IPLC reseller has to provide end-to-end IPLC between India and country of destination for any capacity denomination. For providing the IPLC service, the reseller needs to take IPLC from an ILD Service Provider. The reseller is permitted to enter into an arrangement for leased line with Access Providers, NLD

Service Providers and ILD Service Providers for provision of IPLC to end customers. However, IPLC licensees have not met with success.

2.22 As mentioned earlier, the MVNO model is most popular amongst VNOs, therefore the question arises whether Indian telecom market in ready for introduction of VNOs in all segments of Voice, Data and Videos including those in V-SAT, PMRTS/CMRTS, GMPCS services etc? Whether any business case/revenue potential exists for these services? Further, in the PCP one issue was raised that instead of introduction of VNOs in all areas of Voice, data and Videos, should only MVNOs be allowed to function under the present UL framework?

2.23 In response to the PCP, some stakeholders argued that VNOs for niche services like VSAT, PMRTS/CMRTS would face a similar fate, as that of IPLC, if the licensing opportunity was opened for these services through VNOs. In GMPCS service, there is no facility based operator in the country. In respect of Internet services although there is ample competition amongst NSOs, a need is there for introduction of VNOs. Such VNOs could be small cable operators and locality/high rise based providers who have laid OFC for the last mile connectivity. One stakeholder opined that VNOs should be introduced in all services including access services for voice and data services; unless VNOs are provided access to all available services, it may not be helpful for overall growth and the efficient utilisation of available infrastructure. The VNO's business as resellers should be encouraged, rather than confining them to limited services. One stakeholder said that VNOs should exclude NLD/ILD, which are required to follow the respective license procedures and obligations.

2.24 As stated in Para 1.5, the Unified Licensee is authorised for any one or more services listed in the para. The foregoing discussion leads to the following issues:

**Q4. Does there exist a business case for introduction of VNOs in all segments of Voice, Data and Videos?**

**Q5. Whether VNOs be introduced in all or some of the services notified in the UL? Please name the services and the justification.**

### C. Availability of Infrastructure

2.25 To ensure development and proliferation of telecom infrastructure across the country, the GoI, while opening up the telecom sector, took a conscious decision that all TSPs would have their own network for providing services to their subscribers. To meet this end, each TSP was mandated to comply with certain roll-out obligations; sharing of infrastructure was not permitted initially.

2.26 Later, in March 2006, to encourage tower sharing amongst TSPs, the GoI initiated a project 'Mobile Operator Shared Tower (MOST)'. CMTS/UAS Licencees were permitted sharing of "passive" infrastructure viz., building, tower, dark fibre etc. In April 2008, for optimum utilization of the available resources and to reduce the cost of providing services, the Government issued 'Guidelines on Infrastructure sharing among the Service Providers and Infrastructure Providers'. As per these guidelines, service providers were permitted to share the active infrastructure limited to antenna, feeder cable, Node-B, Radio Access Network (RAN) and transmission system only (no spectrum sharing was permitted). However, these guidelines could never become operative for want of an amendment in the license conditions.

2.27 Existing TSPs are sharing passive infrastructure which has helped them in reducing cost of operations and increase resources-use efficiency. Telecom towers have been given infrastructure status by the GoI vide Gazette Notification in 2012. The NTP-2012 also says:

*"To work towards recognition of telecom as Infrastructure Sector for both wireline and wireless and extension of the benefits available to infrastructure sectors to telecom sector also, to realize true potential of ICT for development".*

2.28 The basic idea of a VNO is to lease resources/infrastructure (active and passive) from an established NSO. In the Indian context, if a VNO type licensing model is visualized, the role of NSO is vested with the existing TSPs. The infrastructure used by VNO ranges from active and passive infrastructure including access spectrum available with the TSPs. The primary requirement for a VNO model is that the existing setup must have enough infrastructure to be made available to the VNOs. This leads to the following questions:

**Q6. Is there sufficient infrastructure (active and passive including access spectrum) available with a TSP to meet its own requirements? Can TSPs spare available infrastructure for VNOs?**

**Q7. If any TSP is able to share its infrastructure with VNOs, what should be the broad terms and conditions for sharing the infrastructure?**

**Can VNOs build and own part of infrastructure?**

2.29 One issue for consideration is whether VNOs could be permitted to lay a part of the infrastructure as it is possible that, in some areas, NSO may not have laid its infrastructure even while it has spectrum. In such a scenario it is beneficial for the NSO to allow the VNO to provide network connectivity so that both get revenue from the new area(s). Similar arrangement was made for Internet Service Providers (ISPs) in 2004 by allowing them to provide last mile connectivity. In 1998, when the ISP licenses were first issued, ISPs were not permitted to set up last mile connectivity. However based on TRAI's recommendations in 2004, this was later permitted by the DoT using any of the media using copper,

OFC, radio etc.

2.30 In its recommendation on MVNO issued in 2011 the Authority had recommended permitting MVNOs to set up their own infrastructure including MSC, Radio Access Network (RAN)/Base Station Subsystem etc., if required. In many countries full MVNOs have invested heavily in some part of the network.

2.31 Another thought is whether small cable operators and others, who have created last mile infrastructure, may be allowed to share their network with VNOs to provide broadband services. The issue needs consultation.

**Q8. Should VNOs be allowed to create their own infrastructure to reach out to niche markets? If yes, to what extent?**

**Q9. Should Local Cable Operators (LCOs) or Multi System Operators(MSOs) with cable networks be permitted to share infrastructure with VNOs to provide last mile connectivity?**

# CHAPTER III: INTRODUCTION OF VNOs: LICENSING ISSUES

## Background to the Licensing Framework in India

3.1. In 1992, the telecom services sector was opened to private participation and licences for radio paging and other value added services were issued. GSM-based cellular mobile telephony service (CMTS) was introduced in 1994/1995, and two private service providers were licensed in each service area (the GoI retaining the right to enter as the third operator; this later allowed entry of MTNL and BSNL). In August 1995, Internet services were launched by Videsh Sanchar Nigam Limited (VSNL). In 1997-98, fixed services licences were awarded to the private service providers.

3.2. The New Telecom Policy 1999 (NTP'99), permitted Cellular Mobile Service Providers (CMSPs) to provide, in their service area of operation, all types of mobile services including voice and non-voice messages, data services and PCOs utilizing any type of network equipment, including circuit and/or packet switches. NTP'99 also envisaged the opening up of the National Long Distance (NLD) services and International Long Distance (ILD) services. Accordingly, the GoI opened NLD services to private operators in August 2000 and ILD services in April 2002. Later, ILDOs were permitted to provide international bandwidth on lease to resellers who were issued licences for 'Resale of International Private Leased Circuits (IPLC)'.

3.3. In Oct 2003, in its recommendations on 'Unified License', the Authority recommended that Unified Licensing be introduced in two phases (i) Unified Access Service License (UASL) and (ii) Unified License(UL).

3.4. The UASL was introduced by the GoI in November 2003. Thereafter, the Authority began consultations for framing guidelines for a complete

Unified Licensing Regime. It issued a Consultation Paper on the 'Unified Licensing Regime' on 13th March 2004. In the paper, three models were discussed for the introduction of Unified Licensing in the country:

a) **Model I: Unified License and Class License**

This model classified the licensing regime as:

- Unified License (UL)
- Class license for some services under Unified License
- No license required for some services

Within this model five categories (combinations of various services) were proposed.

b) **Model II: Unified License Regime on the lines of the Convergence Bill**

This model provided four categories:

i) **Network infrastructure facilities**: - To provide or own telecom infrastructure including towers and ducts.

ii) **Networking services:** To provide bandwidth services, fixed links and mobile links.

iii) **Network application services**:- To provide public switched telephony, public cellular telephony, Global Mobile Personal Communication Services by satellite, IP telephony, Radio Paging, VSAT, Public Mobile Radio Trunking, Public Switched data services

iv) **Value added network application services**: - To provide Internet services, Unified messaging services etc.

c) **Model III: Facility and Service Based Licensing**

This model was based on dividing licenses in two categories: Facility Based License (FBL) and Service Based License (SBL). The service providers offering telecom services using their own infrastructure come

under the FBL category. On the other hand, SBLs can offer telecom services by leasing infrastructure from others.

3.5. On 13th January 2005, the Authority gave its recommendations on 'Unified Licensing Regime'. In the recommendations it was stated that:

*"..On closer scrutiny of these models, it is observed that fundamentally these models are not different from each other. For example, one could classify facility-based licenses under Unified License and service-based licenses under class license. Under this situation, Model-I and Model-III will be same. Similarly, if network infrastructure facilities (Like IP-I Services), networking services (bandwidth services like IP-II licensee) and value added network application services (like Internet Services) are combined under class license and network application services are put under Unified License then Model-I and Model-II will be the same.*

In these recommendations, the Authority recommended a modified **Model-I** viz. Unified License and Class License Model along with 'Licensing through Authorisation' and a standalone 'Broadcasting and Cable TV' license.

3.6. The above recommendations were <u>not</u> accepted by the Government. This was conveyed by the DoT's communication of July 2007. It is worth pointing out that no reasons were provided by the DoT for rejecting the Authority's recommendations.

3.7. Subsequently, the DoT through a letter dated 10th October 2011 requested TRAI to recommend UL guidelines for new licensees along with modalities and guidelines for enabling existing UASL/CMTS/ISP /NLD/ILD/GMPCS licensees including IP-I providers to migrate to National/Service Area level UL.

3.8. On 16th April,2012,the Authority issued its recommendations on 'Guidelines for Unified Licence/Class Licence and Migration of Existing

Licences' and subsequent clarifications to the DoT's queries on 12th May 2012.

3.9. After considering the Authority's recommendations, the GoI announced guidelines on 19th August 2013 for the grant of UL.

3.10. The Indian telecom sector has just moved to a UL regime in August 2013 with the objective of providing a simple and clear licensing framework for all telecom services. The licenses granted under the existing license regime cater for both i.e. building network infrastructure and offering telecom services.

3.11. On 6th December,2013, the DoT issued amendments to the above guidelines, in respect of migration and renewal of existing licenses. According to the amendment, the condition that, in case a service provider wants to expand the scope of their license/service to include any additional service or any licensed area, it shall have to migrate all its existing licenses to UL, was removed. The amendment also covered the definition of access services. Later, consolidated guidelines for grant of UL were issued on 8th January 2014. These guidelines are available on the DoT website.

3.12. At present, there are telecom service providers having CMTS licences, UAS licenses, NLD/ILD licenses etc. Some TSPs have migrated to UL or taken new UL licenses. In all the present licenses, the licensee needs to have its own network to provide its services. Hence all the existing TSPs are a combination of both i.e. NSO and VNO.

### A. Licensing options for NSOs & VNOs

3.13. In case it is decided that VNOs be introduced in the sector, there will be two options to license them (a) Create an entirely new license for VNOs specifying services it can offer; (b) Append a new chapter to the existing UL agreement for VNOs.

3.14. In their response to the PCP, stakeholders had divergent views on the above issue. One set of stakeholders said that the existing UL is comprehensive enough to cater to both types of service providers, i.e. NSO & VNO together, and a standalone VNO; hence, there is no need for migrating to a new and different licensing regime. Appending new chapter/guidelines to the existing UL would be sufficient to meet regulatory requirements. The other set of stakeholders held that as the telecom sector had just moved to a UL regime for all telecom services, this should not be further disturbed by the introduction of a separate licensing/regulatory framework for VNOs. In their view, no existing licensee had shown any intent to migrate to even the UL regime and there was no incentive to do so either. The operators are sceptical about the UL regime. Hence, they opined that, in such a situation, to add layers of complexity and VNOs is completely unnecessary. One stakeholder stated that the existing integrated TSP licenses should be treated as NSOs, already having authorization to provide network and service delivery and VNOs would be required to be licensed for service delivery in the new licensing regime. Another stakeholder said that an authorization registration based model could also be looked at for allowing new entrants as well as existing operators in the sector who may wish to become a VNO. The objective should be to ensure that resale VNOs are encouraged to promote competition, innovation and affordability. Another stakeholder opined that while deciding on a new licensing framework, regulatory compliance costs need to be kept in mind as phase-wise implementation is turning out to be complicated viz. first UASL, then UL, then a Network License and a Service License, next could be OTT licenses for the same layer, and even a license for converged services including M2M. Therefore, farsighted measures need to be taken that prevent fragmentation of licenses and migration paths.

3.15. In view of the foregoing, following issues need consultation from the stakeholders:

**Q10. Does the adoption of the VNO model requires an entirely new licensing regime or will a chapter or a separate section for VNOs added to the existing UL suffice?**

**Q11. Comment on what measures are required to ensure that the existing or new licensing regime takes care of future requirements of technological development and innovation and provides a clear roadmap for migration to existing service providers.**

**B. Need for simplification of the licensing structure**

3.16. Presently, there are multiple types of licenses i.e. access service licenses, long distance service licenses, satellites based services licenses (VSAT, MSS, GMPCS/*Sui-generis* licenses). There are other licenses like ISP, PMRTS/CMRTS. Within access services alone there are 5 different licenses viz. Basic Service Licenses, CMTS, UASL, UL (AS) and UL. In UL too there are various authorizations. There is also a registration mechanism for Infrastructure Providers (IP). There are complexities even in service area definition. While in the Delhi Service area, municipal areas of Gurgaon, Faridabad, Noida and Ghaziabad come under the UASL/UL(AS)/UL licensed service area, for the Basic service license, Gurgaon and Faridabad come under the Haryana LSA and Noida and Ghaziabad fall under the UP(W) LSA. A similar position exists in Mumbai and Maharashtra LSAs. In Tamil Nadu there are two types of service areas; while most TSPs have Tamil Nadu as one LSA, there are two licensees having two licenses (one for Chennai and other for the rest-of-Tamil Nadu).

3.17. In case VNOs are allowed, another type of license/chapter/section will be needed. Licensees have not been mandated to migrate to UL (or any other

license regime). They have the discretion to choose whether or not to migrate to the new licensing regime based on merits and associated inherent benefits. As a result all these types of licenses/licensees co-exist which renders the current licensing structure very complex.

3.18. In view of the complexities associated with the existing license regime(s), it needs to be deliberated whether the sector should move towards the NSO and VNO based new licensing regime and all licensees mandated to move to the new licensing regime so that future needs can be met. Existing licencees providing networks and services can be given both the NSO and VNO licenses with validity and terms and conditions as in their prevailing licenses. Those who want to provide only networks or only services may be given NSO or VNO license(s) respectively as per their choice. Therefore, the issues for consultation are:

**Q12. In view of the complexity in the existing licensing regime as explained in Para 3.16 to 3.18, Should India move towards NSO and VNO based licensing?**

**Q13. If yes, whether existing licensees may be mandated to migrate to NSO & VNO based new licensing regime? What challenges will arise in the migration to the two types of licensing framework?**

# CHAPTER IV: LICENSING PROVISIONS FOR VNOs

## A. National Vs Service area wise

4.1 The broad guidelines of UL emphasise no restriction on the number of entrants for provision of any service in a Service Area. The applicant can apply for authorisation for a nationwide UL or for one or more LSAs and service(s), subject to fulfillment of UL terms and conditions.

4.2 In case a license is to be issued to VNOs issues will arise surrounding geographical coverage, duration etc.

**Q14. Should a VNO be issued a license at the National Level, or for LSAs as in the case of UL or should it be based on the host NSO license areas?**

**Q15. What should be the duration of a VNO's license? Should it be linked with the license of the NSO or should it be for 20 years, as in the case of UL?**

## B. The number of VNOs in a Licensed Area

4.3 VNOs will utilise the network of NSO(s) for providing services to its subscribers. The existing TSPs are also providing services using their own network; therefore, there will be increased competition in service delivery. It is possible that there is a resource constraint for the NSOs as they have to cater to their own requirements, question that arises is should there be any restriction on the number of VNOs in a service area for a particular service?

**Q16. Should there be any cap on the number of VNOs in a service area for a particular service? If yes, what should be the number? Please provide (a) service wise and (b) service area-wise numbers with justification.**

## C. Number of VNOs parented to an NSO and a VNO parented to multiple NSOs

4.4 In its recommendations on MVNO, the Authority stated that there should be no restriction on the number of MVNOs attached to an MNO, provided there is only one MVNO in a revenue district. However, an MVNO cannot be attached to more than one MNO in the same service area. The ecosystem of telecom has changed in the last few years. Earlier, there were mainly GSM and CDMA based services. However, now many TSPs offer 3G service and a few are on the verge of launching 4G/LTE services. The optical fiber to be rolled in rural areas also could be a big avenue for service providers to extend their reach.

4.5 Presently there are several telecom technologies like 2G, 3G, 4G /LTE etc available in market. These may create business opportunities for aspiring VNOs to provide services using them. It is possible that a VNO may wish to enter into agreement(s) with more than one NSO to provide services using different technologies e.g. a VNO may have agreement with one NSO for voice services and with another NSO for data services. This will create additional revenue streams for existing NSOs/TSPs also. However, it will also increase complexity in their networks. A question may arise as to whether a VNO be allowed to enter into agreement(s) with more than one NSOs in a LSA for all services it desires to provide or should it be restricted to one NSO for all the services in a LSA. In response to the PCP some stakeholders have favoured parenting to multiple NSOs by VNOs for various service offerings. In view of the foregoing, the issues needing consultation are:

**Q17. Should there be restriction on number of VNOs parented to a NSO? Justify your answer.**

**Q18. Alternatively, should one VNO be permitted to parent more than one NSO per LSA?**

### D. Existing TSPs as VNOs

4.6 Another important issue is whether existing TSPs may be allowed to work as VNOs of another NSO in the same or another LSA? Consider a case in which a TSP has UL authorisation to provide all services in all service areas but has obtained spectrum only for providing 2G services. If this TSP wishes to provide 3G services in the same or other LSA; using spectrum of any other TSP holding 3G spectrum, then would it need additional authorisation for working as a VNO providing 3G services or would the existing UL suffice for permitting it to act as a VNO for providing 3G services? In such a setting, another important issue is whether such an arrangement should attract cross-holding restrictions to prevent possible cartelisation/misuse of market power. There is a need to plan some eligibility conditions for becoming a VNO so that only serious players enter the market. The following questions need response:

**Q19. What should be the eligibility conditions for becoming a VNO?**

**Q20. Whether an existing Unified Licensee with authorisation to provide all services shall be eligible to become a VNO of another Licensee in the same or other LSA? Or, will it need separate/additional authorisation to work as a VNO for delivering services for which it does not have access spectrum?**

**Q21. Should there be any cross-holding restriction between a NSO and VNOs? If yes, please quantify the same with justification.**

### E. Policy to prevent Fly-By-Night VNOs

4.7 As the service agreement is between VNOs and NSOs, there is a need to ensure that only serious players as NSO and/or VNO enter the telecom market. One way to ensure this is to impose certain eligibility criteria related to Equity, Networth, Entry fee, Performance Bank Guarantee(PBG), Financial Bank Guarantee(FBG) and Processing fee.

In the existing UL, the conditions prescribed are:

**Table 4.1: Prescribed Networth, Entrée Fee, PBG, FBG, Processing fee in UL**

| Sl No. | Service | Minimum Equity (Rs. Cr.) | Minimum Networth (Rs. Cr.) | Entry Fee (Rs. Cr.) | PBG (Rs.Cr.) | FBG (Rs.Cr) | Application Processing Fee (Rs. ,000) |
|---|---|---|---|---|---|---|---|
| 1 | UL(All services) | 25.0 | 25.0 | 15.0 | 220.0 | 44.0 | 100 |
| Service Authorisation wise requirements | | | | | | | |
| 1 | Access Service (Telecom Circle / Metro Area) | 2.50 | 2.50 | 1.0 (0.5 for NE & J&K) | 10.0 | 2.0 | 50 |
| 2 | NLD (National Area) | 2.5 | 2.50 | 2.50 | 2.50 | 5.0 | 50 |
| 3 | ILD (National Area) | 2.5 | 2.50 | 2.50 | 2.50 | 5.0 | 50 |
| 4 | VSAT (National Area) | Nil | Nil | 0.30 | 0.50 | 0.30 | 50 |
| 5 | PMRTS (Telecom circle/Metro) | Nil | Nil | 0.005 | 0.010 | 0.010 | 15 |
| 6 | GMPCS (National Area) | 2.50 | 2.50 | 1.0 | 2.50 | 1.00 | 50 |
| 7 | INSAT MSS-R (National Area) | Nil | Nil | 0.30 | 0.02 | 0.020 | 50 |
| 8 | ISP "A" (National Area) | Nil | Nil | 0.30 | 2.00 | 0.10 | 50 |
| 9 | ISP "B" (Telecom circle/Metro Area) | Nil | Nil | 0.020 | 0.10 | 0.010 | 15 |
| 10 | ISP "C" (SSA) | Nil | Nil | 0.002 | 0.005 | 0.001 | 10 |
| 11 | Resale IPLC(National Area) | 2.50 | 2.50 | 1.0 | 2.0 | 1.0 | 50 |

4.8 In response to the PCP, some stakeholders stated that Resale of IPLC could not pick up in India because of the high entry fee which acts as a barrier to entry. These stakeholders supported light touch regulation with nominal financial obligations in the form of Entry Fee, PBF, FBG etc. However, to ensure that fly-by-night operators do not enter the market the policy needs sufficient checks and balances to protect the interests of the consumer and confidence of the industry.

**Q22. What should be the financial obligations of VNOs in the form of a) Equity & Networth b)Entry Fee c)PBG and d)FBG etc.? Please quantify the same with justification.**

### F. Numbering resources

4.9 Numbering resources are finite and precious. Their efficient utilization should be an obligation of the licensee. Presently, numbering blocks/resources are allocated by the Licensor on the basis of requirements and justification submitted by TSPs. In the proposed licensing framework, it can be envisaged that routing of calls shall be the responsibility of the NSO. The issue that arises is whether number resources should be allocated to a VNO by the NSO or the Licensor.

4.10 If numbering resources are given to the VNO by the parent NSO and in case a dispute arises between the two resulting in termination of the agreement with each other, and if the VNO decides to parent with another NSO, then would the numbering resources allocated to the VNO by the previous NSO be retained by the VNO? A connected issue is that in case numbering resources are allocated by the Licensor directly to the VNO and if a dispute arises leading to termination of the agreement between the VNO and NSO and the VNO then decides to parent with another NSO (new), how would calls to such VNO be routed through the new NSO?

**Q23. Should a VNO utilise numbering resources, Network Codes and Locational Routing Number (LRN) of the NSO? Or, should the Licensor allocate separate numbering resource, Network Codes and Locational Routing Number(LRN) directly to a VNO?**

**Q24. What operational difficulties could arise in the above arrangements?**

**Q25. In case your reply is that the Licensor allocates numbering resource to the VNO, then how can it be ensured that the resources allocated**

**to a VNO are efficiently utilised? Should any obligation be placed on VNOs for efficient utilisation of resources?**

### G. Issue of AGR, License Fee and SUC for VNO

4.11 The issues of Adjusted Gross Revenue(AGR), License Fee (LF) and Spectrum Usage Charges (SUC) have been covered in the UL guidelines. On the definition of AGR, the Authority has already issued a CP on the Definition of Revenue Base for the Reckoning of License Fee etc.

4.12 At present the LF is 8% of AGR and SUC is based on a weighted average of administratively allocated spectrum charge slabs and on auction won spectrum slabs. In April 2011, the Authority had recommended that MVNOs should pay spectrum charges on its revenue. The slab applicable to the MNO will equally be applicable to the MVNO.

4.13 In the proposed scenario, where the VNO will be providing access services using the spectrum of an MNO, it will have to use the spectrum of the MNO. The issue is whether a VNO using access spectrum of an MNO needs to pay SUC? If yes, should the SUC be at the same rate as the MNO or should it be different?

**Q26. Should the LF and SUC applicable to the VNO be as per stipulated conditions of authorisation in UL? Or, should it be treated differently for VNO? Please quantify your answer with justification.**

### H. Interconnection and roaming arrangement

4.14 The VNO would have an agreement with a NSO for carriage of voice or non-voice traffic which is originated by its subscribers. The role of the NSO is crucial in providing interconnection and roaming arrangements on a time-bound and need basis. There may be occasions when an NSO does not meet the requirements of a VNO. The issue is:

**Q27. Should an NSO be mandated to provide access to its network to a VNO in a time-bound manner or should it be left to their mutual agreement.**

### I. Mobile Number Portability (MNP)

4.15 Since the MNP process began in January 2011, more than 116 million subscribers have ported to TSPs of their choice. Thus MNP has been instrumental in promoting competition and improving Quality of Service(QoS). The GoI has announced the implementation of full Mobile Number Portability in India by May,2015. A Location Routing Number (LRN) is assigned to each licensee for each service in an LSA for the purpose of signaling and routing calls. Should a VNO be allowed to facilitate MNP on its own or through the network of the NSO? Further, if the VNO is to facilitate MNP on its own, would there be any technical and implementation issues involved?

**Q28. How can MNP be facilitated in the VNO/NSO model? Can the VNO be treated separately for MNP purposes? Or, should MNP be facilitated only through the network of the NSO?**

### J. Responsibility for CAF verification and activation

4.16 Lawful interception and national security related issues are vitally important. The NSO is providing its core network to be accessed by the customers of the VNOs. There are various security agencies involved in surveillance and monitoring at different levels. Though the network is provided by the NSO, as per the terms and conditions of the agreement, activities of subscriber acquisition, provision of services and billing are directly and solely associated with the VNO. Since subscriber verification is not directly associated with the NSO, rightly it should be the responsibility of the VNO.

**Q29. Who is to be held responsible for CAF verification and number activation, the NSO, the VNO or both?**

### K. Quality of Service and Consumer complaints

4.17 In the VNO-NSO model, services to end subscribers will be provided by the VNO, but it will utilise the network of the NSO. Who then is responsible for maintaining quality of service and handling consumer complaints? Some prescribed QoS parameters like fault repair meantime etc. which will lie in the exclusive domain of the VNO; however, there are network parameters which the NSO has direct role in maintaining within prescribed limits.

**Q30. Should an NSO or VNO or both be responsible for maintaining QoS standards as per TRAI's regulations?**

### L. Merger and Acquisitions (M & A)

4.18 The Government has notified new M&A guidelines on 20th February, 2014. In terms of these guidelines, the market share of a merged entity has been raised to 50% of the subscriber base and revenue as against the 35% ceiling that existed earlier. The salient features of the guidelines are in **Annexure-III.** The telecom market in India is highly competitive with a low HHI. Consolidation in the industry has been the talk of industry experts for the last 2-3 years.

4.19 Mergers are possible between two VNOs, between one VNO and a NSO, and between one VNO and any other NSO in the LSA. The issue to be deliberated is whether existing M&A guidelines should be applicable to VNOs or separate guidelines need to be formulated.

**Q31. How should Mergers & Acquisitions be dealt with in the VNO/NSO licensing model? Should the recently announced M&A guidelines**

**issued by the Government for existing players be extended to cover VNOs? Or, should their M&A be treated separately?**

**M. Tariff filing**

4.20 Tariff orders/regulations/directions/decisions are issued by TRAI from time to time; existing TSPs are filing tariffs with the Authority to compliance of all such obligations. In the VNO-NSO model, VNOs and not NSO will set tariffs for end customers.

**Q32. Should the VNO be treated equivalent to the NSO/ existing TSPs meeting obligations arising from Tariff orders/regulations /directions etc. issued by TRAI from time to time?**

4.21 In case, stakeholders feel that any other relevant issue needs to be discussed and brought to the notice of the Authority, they may submit their response to the following question.

**Q33. Please give your comments on any related matter not covered in this Consultation paper.**

# CHAPTER -V: INTERNATIONAL EXPERIENCE

## Singapore

5.1 Licensing in Singapore is categorized into two segments:

1) Facility Based Operators(FBOs)
2) Service Based Operators (SBOs)

### Facility Based Operators (FBOs)

5.2 Facilities-based operations refer to the deployment and/or operation of any form of telecommunication network, systems and/or facilities by any person for the purpose of providing telecommunication and/or broadcasting services outside of his own property boundaries to third parties, who may include other licensed telecommunication operators, business customers or the general public. Licensees who are licensed as FBOs will be able to offer the services that SBO can offer, but not vice versa.

### License fee and license duration

5.3 The FBO licensee has to pay annual recurrent fee based on Annual Gross Turn Over (AGTO) of the FBOs, subject to a minimum of $80,000 or $200,000 depending on whether the license is a FBO or PTL respectively. No upfront or initial fee is levied.

Table 5.1

| License | License fee | |
|---|---|---|
| • FBO | License duration: 15 years, renewable for a further period as IDA thinks fit. | |
| | First S$ 50 million in AGTO | S$ 80,000 |
| | Next S$ 50-$ 100 million in AGTO | 0.8% of AGTO |
| | Above S$100 million in AGTO | 1% of AGTO |
| • FBOs designated as Public Telecommunication | License duration: 20 years, renewable for a further period as IDA thinks fit.<br>Annual fee (sum of the below): | |
| | First S$ 50 million in AGTO | S$ 200,000 |

| License | License fee | |
|---|---|---|
| Licensee | Next S$ 50-$-100 million in AGTO | 0.8% of AGTO |
| | Above S$ 100 million in AGTO | 1% of AGTO |
| • Public Mobile data services<br>• Public trunked radio services | License duration: 10 years, renewable for a further period as IDA thinks fit.<br>Annual fee (sum of the below): | |
| | First S$ 50 million in AGTO | S$80,000 |
| | Next S$50-$-100 million in AGTO | 0.8% of AGTO |
| | Above S$100 million in AGTO | 1% of AGTO |
| • Terrestrial telecommunications network for broadcasting purposes only<br>• Satellite uplink/downlink for broadcasting purposes | License Duration: 10 years, renewable on a 5-yearly basis<br>Annual fee: 5,000 | |

**Service Based Operators (SBOs)[7]**

5.4 SBOs are operators intending to lease telecommunications network elements such as transmission capacity, switching services, ducts and fiber from any FBO licensed by IDA to provide telecommunications services to third parties or resell the telecommunications services of FBO.

5.5 SBO (Individual) Licensees who collect monetary deposits and/or issue prepaid cards for collection of payments from their customers are required to have a paid-up capital of at least S$100,000 (US $ 79,660) at the point of licensing.

5.6 The range of operations and services that requires individual licensing under the SBO (Individual) Licence category includes the following:

i. International Simple Resale (ISR)
ii. Resale of Leased Circuit Services
iii. Public Internet Access Services

[7] http://www.ida.gov.sg/~/media/Files/PCDG/Licensees/Licensing/SBOLicence/SBOGuide.pdf

iv. Internet Exchange Services
v. Virtual Private Network Services
vi. Managed Data Network Services
vii. Mobile Virtual Network Operation
viii. Live Audiotex Services
ix. Prepaid Services for other telecommunication services such as:
    - Call-back / Call Re-origination Services
    - Internet Based Voice and Data Services
    - International Calling Card (ICC) Services
    - Resale of Public Switched Telecommunication Services
    - Store-and-Retrieve (S&R) Value-Added Network Services
    - Store-and-Forward (S&F) Value-Added Network Services
x. Global Mobile Personal Communications by Satellite (GMPCS) Services
xi. IP Telephony Services
xii. Voice and Data Services with Masking of Calling Line Identity
xiii. Satellite Mobile Telephone or Data Services
xiv. Mobile Communications on Aircraft
xv. Machine-To-Machine (M2M) Services
xvi. White Space Geo-Location Database Services

**General licensing and Regulatory Framework**

5.7 All SBO licensees are regulated in accordance with the licensing and regulatory frameworks formulated under the provisions of the Telecommunications Act (Cap. 323). Licensees are also required to comply with the Code of Practice for Competition in the Provision of Telecommunication Services (Telecom Competition Code), which aims to ensure the development of a fair and competitive telecommunication environment in Singapore. SBO (Individual) licensees may be required to comply with the Accounting Separation Guidelines.

**Specific conditions for MVNO**

5.8 The MVNO must use part of the networks of the mobile operator(s) licensed by IDA under the FBO Licence to originate and deliver its customers' calls.

5.9 The Licensee shall comply, at its own cost, with any requirements and guidelines established by IDA on number portability to be implemented by the Licensee.IDA reserves the right to establish minimum quality of service standards for the Services provided by the Licensee with which the Licensee shall comply. The Licensee shall ensure that any person through functioning mobile terminal equipment may at any time and without charge, contact the national emergency services.

**License fee and duration**

Table 5.2

| **Licenses** | **License Registration Fee** |
|---|---|
| **Services-Based Operators to be Individually Licensed** | |
| **Annual Fee** | |
| First S$ 50 million in AGTO8 | S$ 4,000 |
| Next S$ 50 - S$100 million in AGTO | **0.5%** AGTO |
| Above S$ 100 million in AGTO | **0.8%** AGTO |
| **Services-Based Operators to be Individually Licensed** | |
| Live Audiotex services only | S$ 200 every five-yearly |

All SBO (Individual) licences are valid for a period of five years and renewable every five-yearly.

5.10 IDA, Singapore has recently issued a consultation paper on "Proposed Allocation Of Spectrum For International Mobile Telecommunications ("IMT") And IMT-Advanced Services And Options To Enhance Mobile Competition"[8] dated 22 April 2014.

5.11 IDA recently studied the feasibility of increased services-based competition in the mobile market through the potential introduction of MVNOs in the market, and found that the introduction of MVNOs will potentially bring about significant increases in consumer surplus and potential net benefits to Singapore such as through more competitive prices. While MNOs may commercially enter into wholesale arrangements with MVNOs today, the number and market share of MVNOs in Singapore is small, at less than 1%, and catering to very niche markets. Thus, IDA is exploring additional measures to encourage the hosting of MVNOs by MNOs. Presently 13 small MVNOs are operational hosted by 3 mobile network operators - SingTel, M1 and Starhub.

5.12 Their proposal for consultation: Given the upcoming pipeline of spectrum to be allocated for commercial mobile services, the use of spectrum auctions or spectrum licensing conditions could potentially be a means for IDA to implement a framework to facilitate hosting of MVNOs. For example, the re-allocation of the 900 MHz band could be a basis for IDA to implement an MVNO-hosting framework, where MNOs wishing to acquire re-allocated spectrum in the 900 MHz band are subject to targets tied to the hosting of MVNOs on their existing mobile networks. Given the near-immediate availability of the TDD bands, the allocation of the TDD bands could also be used in conjunction with the re-allocation of the 900 MHz band to align MNOs with MVNO-hosting targets.

[8] http://www.ida.gov.sg/~/media/Files/PCDG/Consultations/20140422_ProposedAllocationSpectrumIMT/ConsultationPaper

5.13 IDA is also exploring other options, such as the use of government demand for wireless connectivity to incentivise MVNO-hosting.

**Hong Kong**

5.14 In Hong Kong, public telecommunications services can be provided either by facility-based operators or service-based operators. Facility-based operators refer to operators which establish their own networks, which may cross unleased Government land and public streets, for the provision of public telecommunications services. Service-based operators refer to telecommunications service providers which rely on the fixed or mobile networks established by facility-based operators to provide their own telecommunications services.

5.15 Services-Based Operator ("SBO") Licences are issued by Communication Authority (CA), Hong Kong. Prior to the creation of the SBO Licence in 2006, only facility-based operators could provide local voice telephony services in Hong Kong.

**Licensing and Regulatory Framework**

5.16 Service-based operators, except for mobile virtual network operators ("MVNOs"), were not permitted in Hongkong to provide local voice telephony services but they could apply for PNETS licences to provide other public telecommunications services, such as external telecommunications service and international value-added network service (which also covers Internet access service).

5.17 In October 2009, the CA statement entitled "Review of the Public Non-Exclusive Telecommunications Service and Services-Based Operator Licensing Regimes" was issued concluding a review on the licensing of service-based operators. SBO Licence was modified by creation of a new Class 3 type of service under the SBO Licence to replace the PNETS Licence as well as allowing SBO licensees to provide service to both fixed and mobile customers. PNETS Licences are no longer issued now.

5.18 The applicant shall apply for an SBO Licence under which one or more types of Class 3 services are authorized. The provision of local voice telephony services is not permitted under the SBO Licence for Class 3 services, except for the provision of MVNO service. Class 3 services which may be authorized under the SBO Licence include the following eight categories of services:

(i) external telecommunications service ("ETS");
(ii) international value-added network service ("IVANS");
(iii) mobile virtual network operator ("MVNO") service;
(iv) private payphone service;
(v) public radio communications relay service ("Radio Relay");
(vi) security and fire alarm signals transmission service ("Security & Alarm");
(vii) teleconferencing service
(viii) Any other service designated by the CA as a "Class 3 service".

Two types of PNETS are previously excluded from the SBO Licence, namely mobile virtual network operator and public radio communications relay services.

**Period of Validity**

5.19 The validity of SBO licenses shall be determine and published by the CA at the time of the issue of the SBO Licence. At present, the SBO Licence is valid for one year and may, at the discretion of the CA, be renewed on an annual basis.

**License Fee**

5.20 An SBO licensee shall pay the fees applicable to the SBO Licence as determined and published by the CA from time to time. At present, the licence fee payable on the issue or renewal of the SBO Licence consists of the following components:

A fixed fee of

i. $25,000 where services other than Class 3 services (i.e. Class 1, Class 2 or other local voice telephony services) are provided by the licensee during the validity period of the SBO Licence; or

ii. $750 for each type of Class 3 service provided during the validity period of the SBO Licence, if the licensee is authorized to provide Class 3 services only. If the licensee is authorized to provide services other than Class 3 services (i.e. Class 1, Class 2 or other local voice telephony services), only the fixed fee under (i) will apply and the licensee does not need to pay the fixed fee under (ii) for any additional Class 3 services that may be authorized.

Application Procedure

Table 5.3

| Service Type | Applicable Fee ($) |
|---|---|
| Class 1 services, Class 2 services, or services other than Class 3 | 25,000 |
| For each type of Class 3 services | 750 |
| Number fee | 3 |
| Every base or fixed station | 750 |
| Each 100 mobile stations | 700 |

5.21 An SBO licence may be granted under the following scenarios:

(a) Application for a new SBO licence; or

(b) Conversion of multiple SBO licences into one SBO licence.

5.22 The service provider has to be a business entity registered under the Companies Ordinance. For interconnection with other public telecommunications networks/services, the applicant shall have proper interconnection arrangement established with other licensed telecommunications operators and the equipment of the proposed service shall meet the technical specifications for interconnection with such networks/services as or may be specified by the CA.

5.23 According to CA, an MVNO is an operator who provides a public radiocommunications service to customers through interconnection with, and access to, the radiocommunications infrastructure of an MNO licensed under a UCL authorised for provision of mobile service or an MCL and assigned with the radio spectrum through which the public radiocommunications service is provided.

5.24 If an MVNO meets the relevant criteria of the Numbering CoP issued by the CA, the MVNO will have the following rights and obligations with respect to numbering arrangements:-

Rights with respect to numbering arrangements:-

(a) the MVNO will be allocated its own numbers direct by the CA; and

(b) the MVNO may be allocated a Mobile Network Code.

Obligations with respect to numbering requirements:-

(a) the MVNO shall conform to the Numbering Plan;

(b) the MVNO shall facilitate mobile number portability;

(c) the MVNO shall provide emergency services to its customers; and

(d) the MVNO shall contribute towards the cost of USO in Hong Kong.

5.25 In accordance with the licence conditions of the UCL for an MNO operating in the 1.9-2.2 GHz band for 3G services, the MNO is obliged to open 30% of its network capacity to MVNOs who are not affiliated to any MNOs.

5.26 Five mobile network operators compete in the retail mobile market of Hong Kong together with seven active MVNOs and a number of resellers[9]. The MVNOs in Hong Kong hold the market shares of 7% in terms of subscription. Hong Kong Telecommunications (HKT) Limited, a carrier

[9]http://www.coms-auth.hk/filemanager/common/policies_regulations/competition/Mergers/consultancy_report_20140505.pdf

licensee has recently proposed to acquire CSL New World Mobility Limited, the holding company of CSL Limited, also a carrier licensee.

**United Kingdom**

5.27 Ofcom issues licences under the Wireless Telegraphy Act 2006 to the Mobile Network Operators that operate the physical networks and use radio spectrum. An MVNO provides services using the infrastructure of one of the MNOs.

5.28 The process for establishing an MVNO depends on what services the MNO is supplying to the MVNO and is a commercial matter between those two parties. There are no specific MVNO-related Ofcom specific telecoms regulatory requirements beyond those in the published General Conditions of Entitlement.

5.29 Ofcom does not require notification before electronic communications networks and services can be operated in the UK.

5.30 The first operator which started its operation in UK in 1999, is one of the successful global MVNO. It gained 8% plus market share (>4 million) customers in five years.

5.31 Most MVNOs' financial strategies have largely been dictated by cost structure. The two significant advantages for MVNOs are:

- significantly lower levels of capital expenditure; and
- much shorter time taken to reach positive cash flow than a network operator.

5.32 MVNOs pay out a large proportion of their revenues in fixed agreement wholesale fees to network operators, their operating margins are far lower than those of MNOs. This results in a significant financial risk to the MVNO business model.

**Malaysia**

5.34 The Malaysian Communications and Multimedia Commission issues licenses under the Communications and Multimedia Act 1998, the Postal Services Act 1991 and the Digital Signature Act 1997.

5.35 As the communications and multimedia industry evolves towards convergence, licenses under the Communications and Multimedia Act 1998 are formulated to be both technology and service neutral. The licensing regime as provided for under the Communications and Multimedia Act 1998 allows a licensee to undertake activities that are market specific. This creates opportunities for expansion into the industry particularly in the area of Applications Service Providers and provides for a more effective utilization of Network Infrastructure.

5.36 Within the activity categories, there are two key types of licences:–

a) **Individual licence** requires a high degree of regulatory control which is for a specified person to conduct a specified activity and may include special conditions; and

b) **Class licence** is a 'light-handed' form of regulation which is designed to promote industry growth and development with easy market access.

5.37 There are four categories of licensable activities as per under the Communications and Multimedia Act 1998,

i. **Network Facility Providers**

Who are the owners of facilities such as satellite earth stations, broadband fiber optic cables, telecommunications lines and exchanges, radio-communications transmission equipment, mobile communications base stations, and broadcasting transmission towers and equipment. They are the fundamental building block of the convergence model upon which network, applications and content services are provided.

**ii. Network Services Providers**

Who provide the basic connectivity and bandwidth to support a variety ofapplications. Network service enables connectivity or transport between different networks. A network service provider is typically also the owner of the network facilities. However, these services may also be provided by a person using network facilities owned by another.

**iii. Application Service Providers**

Who that provide particular functions such as voice services, data services, content-based services, electronic commerce and other transmission services. Applications services are essentially the functions or capabilities, which are delivered to end-users.

**iv. Content Applications Service Providers**

Who are special subset of applications service providers including traditional broadcast services and the latest services such as online publishing and information services.

5.38 For an Individual License the applicable license fees are as follows:

a. Application Fee - RM10,000.00 (US$ 3138) (non refundable)
b. Approval Fee - RM50,000.00 (US$ 15690)
c. Annual Fee - 0.5% of Gross Annual Turnover or RM50,000 (US$ 15690) whichever is higher

5.39 The number of licenses issued in various categories in Malaysia[10] are shown in the table below:

[10]http://www.skmm.gov.my/skmmgovmy/media/General/pdf/Q1_2014C-MPocket.pdf

Table 5.4: Number of licenses issued in various categories as on March 2014

| Category of License | Number of Individual Licenses | Number of Class Licenses | Total |
|---|---|---|---|
| Network Facilities Providers | 142 | 22 | 162 |
| Network Services Providers | 134 | 22 | 156 |
| Application Service Providers | 0 | 534 | 534 |
| Content Applications Service Providers | 39 | 27 | 66 |
| Total | 315 | 605 | 918 |

5.40 MVNO in Malaysia is granted NSP (I) (Network Service Provider (Individual)) and or ASP- Application Service Provider licenses for operating the services based on the categories defined by MCMC (Malaysian Communication and Multimedia Commission).

5.41 Four type of MVNO categories as defined by MCMC, exists in Malaysia

**a. Full MVNO**

i. As defined by the regulator MCMC, a full MVNO is one that owns or provides network facilities and network services such as towers, mobile switching centres, home location registers ("HLR") and cellular mobile services. A key feature that distinguishes a full MVNO from other business models is its ability to operate independently of the MNOs. Full MVNOs are able to secure their own numbering ranges, offer its own SIM card and have full flexibility on the design of the services and tariff structures.

ii. Full MVNOs are to require a network facilities provider ("NFP") individual licence and a network service provider ("NSP") individual licence for the network facilities and network services that they own or provide. In addition, full MVNOs will require an Application

Service Provider ("ASP") licence in order to provide public cellular services to end users.

**b. Enhanced Service Providers**

i. Enhanced service providers are those who do not own or provide network facilities but have the ability to secure its own numbering range, operate its own HLR and offer its own SIM cards with its own mobile network code. They are dependent on MNOs for network facilities, as well access to radio network.

ii. Enhanced service providers may require NSP individual licence if they own or provide bandwidth services, cellular mobile services or mobile application services and an ASP licence to provide public cellular services to end users.

**c. Enhanced Reseller**

i. Enhanced resellers are primarily distributors who resell services provided by MNOs. As with enhanced service providers, enhanced resellers rely on MNOs for access to the radio network and network facilities. The key feature that distinguishes enhanced resellers from enhanced service providers is that enhanced resellers do not have their own SIM cards. While they may still be able to offer their own branded packages, they will not be able to distinguish their services by their MNC. Enhanced resellers are likely to carry out customer care and billing in house.

ii. Enhanced resellers require NSP individual licence if they provide bandwidth services, cellular mobile services or mobile application services and an ASP licence for providing public cellular services.

**d. Resellers**

Resellers merely resell subscription to end users. In most cases, resellers are completely dependent on MNOs for every aspect of service provision, billing and customer care. However, end users will not be able to make a distinction between resellers, other form of

MVNOs and MNOs as resellers have direct relationship with end users. MVNOs that operate as resellers are required an ASP license.

**Categories and licensing of MVNO in Malaysia**

| Infrastructure and Operational Task | Full MVNO | Enhanced Service Providers | Reseller |
|---|---|---|---|
| SIM, National Destination Code (NDC) | Able to secure their own numbering range, offer own SIM card and have full flexibility on the design of the services and tariff structures. | Have the ability to secure their own numbering range, operate own Home Location Register (HLR) and offer SIM card with its own mobile Network code. | Do not have own SIM card but still able to offer their own branded packages. |
| Network Infrastructure | Own or provide network facilities and network services such as towers, mobile switching centres, HLR and cellular mobile services. | Do not own or provide network facilities.<br>Dependent on MNOs for network facilities and radio network; able to maintain some independence from MNOs as enhanced service providers are able to differentiate their products. | Rely on MNOs for access to the radio network and network facilities. |
| Billing and customer care | Carry out their customer care and billing in house. | Carry out their customer care and billing in house. | Carry out their customer care and billing in house. |
| Branding | Fully independent branding and customer ownership. | Independent branding, billing and high level of customer ownership. | Bundled branding and possible own billing. |
| Pricing | Own pricing | Own pricing, negotiation based | Own pricing, negotiation based |
| Licence | • NFP (I) licence for | • NSP (I) to provide | • ASP licence |

| Infrastructure and Operational Task | Full MVNO | Enhanced Service Providers | Reseller |
|---|---|---|---|
| | network facilities<br>• NSP (I) licence for network services<br>• ASP licence to provide public cellular service to end users. | bandwidth services, cellular mobile services or mobile application services<br>• ASP licence to provide public cellular services to end users. | for providing public cellular services. |

5.42 The MCMC allocate a specific block of numbers for mobile virtual network operators who wish to establish their own brand names. These numbers are assigned for use with network services and application services provided by Network Service Providers and/or Application Service Providers who operate their own home location registers and billing systems.

5.43 The MCMC do not regulate the terms and conditions of access for MVNOs, however it intervene only if it is satisfied that such intervention is necessary to ensure long term benefits to end users and growth in the industry.

**Status of Mobile Virtual Network Operator (MVNO) in Malaysia**

5.44 There are four MNOs in Malaysia, namely the mobile service providers Celcom, DiGi, Maxis and U Mobile. Three out of these, that is, Celcom, DiGi and Maxis, offer their network services to licensed MVNO companies.

5.45 Eight MVNOs are issued licenses to offer mobile prepaid, postpaid and applications based value added services to the customers. Baraks Telecom, Talk Focus and Samata Communications are served by host MNO M/s DIGI whereas MVNOs namely Tune talk, XOX Com and Ceres Telecom are using the services of host MNO M/s Celcom.

5.46 In 2012 for the first time, the mobile subscriptions included MVNO companies, the total market share occupied by MVNOs amounted to 2.2% of the total market share (0.9 million subscriptions).

**United States of America (USA)**

5.47 In the United States, regulatory requirements and regulators vary by technology, with multiple federal (national) and state and local government agencies potentially involved. The basic sector- specific framework is established in the Communications Act of 1934. The national regulator, the Federal Communication Commission (FCC), regulates interstate and international telecommunications, non-military uses of RF spectrum and broadcast television and radio, certain aspects of cable television content.

5.48 State and territorial public utilities commissions (PUCs) regulate intrastate telecommunications services (i.e. the end points of a communication fall within the borders of a single state or territory. The Federal Trade Commission (FTC) regulates trade practices, marketing, privacy, and data protection in the communications sector, except for common-carrier services. The FCC and FTC both regulate marketing activities by broadband Internet Service Providers (ISPs). State or local government franchising authorities regulate cable operators and some telecommunications services. Local governments regulate zoning, rights of way, and wireless tower siting.

5.49 Fixed providers of common-carrier services are authorised by a blanket FCC authorisation to provide interstate domestic services and must obtain affirmative prior authorisation from the FCC pursuant to section 214 of the Communications Act to provide services between US and foreign points, whether facilities-based or resale, whether using undersea cables, domestic or foreign satellites, or cross-border terrestrial facilities,

and regardless of whether the traffic originates or terminates in the United States or both.

5.50 Mobile Service Providers must also obtain international section 214 authorisations to provide services between US and foreign points. States cannot regulate the rates or entry of mobile Service Providers, but can regulate other terms and conditions. Facilities-based mobile service operators must obtain licenses or leases to use RF spectrum, except where the FCC rules permit unlicensed operation.

**Overview of Service Providers**

**Facilities-Based Providers**

5.51 Facilities-based mobile wireless Service Providers offer mobile voice, messaging, and/or data services using their own network facilities. Most facilities-based providers currently offer circuit-switched mobile voice services that are interconnected with the public switched telephone network (PSTN). Many facilities-based providers have deployed, or are currently deploying, Internet Protocol (IP)-based networks.

The Facilities-Based Providers are categories into the following

i. Nationwide Service Providers.
ii. Multi-Regional and Multi-Metro Service Providers
iii. Regional and Local Service Providers

**I. Nationwide Service Providers:**

5.52 There are four facilities-based mobile wireless Service Providers in the United States termed as “nationwide”, theses are AT&T, Sprint Nextel, T-Mobile, and Verizon Wireless. These four nationwide service providers each have mobile wireless networks that cover in excess of 91 percent of the U.S. population in large proportions of the western, mid-western, and eastern United States. These nationwide providers have spectrum

holdings in different bands, including cellular, SMR, PCS, AWS-1, 700 MHz, and 2.5 GHz.

### II. Multi-Regional and Multi-Metro Service Providers:

5.53 Some facilities-based providers offer mobile wireless services on a multi-regional or multi-metro basis. There are three such providers – Clearwire, Leap Wireless International, Inc. (Leap) and MetroPCS Communications Inc. (MetroPCS) – provide service in Multi-metro and multi-regional service providers typically rely on roaming agreements with nationwide facilities-based providers to provide service to their customers in areas not covered by their networks.

### III. Regional and Local Service Providers:

5.54 There are small facilities-based providers throughout the continental United States, Alaska, and Hawaii that typically provide service in a single geographical area, many of them rural areas. There are approximately 95 smaller, facilities-based providers in the continental United States, Alaska, and Hawaii. Regional and local service providers include publicly-traded companies, privately-owned companies, and cooperatives.

### Spectrum Holdings

5.55 Since US telecom market is catered by four national players and three multi-regional and multi-metro service providers, consequently the spectrum is mainly held by these companies. Provider wise population-weighted average megahertz holdings are given below in the Table 5.5.

Table 5.5

Population-Weighted Average Megahertz Holdings by Provider, by Frequency band[11]

| Licensee | 700 MHz | Cellular (850 MHz) | SMR (800/900 MHz) | PCS (1.9 GHz) | AWS (1.7/2.1 GHz) | BRS (2.5 GHz) | EBS Leases (2.5 GHz) |
|---|---|---|---|---|---|---|---|
| Verizon Wireless | 29.4 | 25.2 | 0.0 | 20.6 | 32.1 | 0.0 | 0.0 |
| AT&T | 25.2 | 22.9 | 0.0 | 34.6 | 5.6 | 0.0 | 0.0 |
| Sprint Nextel | 0.0 | 0.0 | 17.5 | 35.5 | 0.0 | 0.0 | 0.0 |
| Clearwire | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 62.8 | 68.7 |
| T-Mobile | 0.0 | 0.0 | 0.0 | 25.7 | 31.3 | 0.0 | 0.0 |
| MetroPCS | 0.3 | 0.0 | 0.0 | 3.4 | 5.5 | 0.0 | 0.0 |
| US Cellular | 2.1 | 2.2 | 0.0 | 2.7 | 1.8 | 0.0 | 0.0 |
| Leap | 0.4 | 0.0 | 0.0 | 3.0 | 6.0 | 0.0 | 0.0 |
| Other | 12.7 | 2.1 | 0.5 | 5.4 | 8.2 | 10.7 | 43.8 |

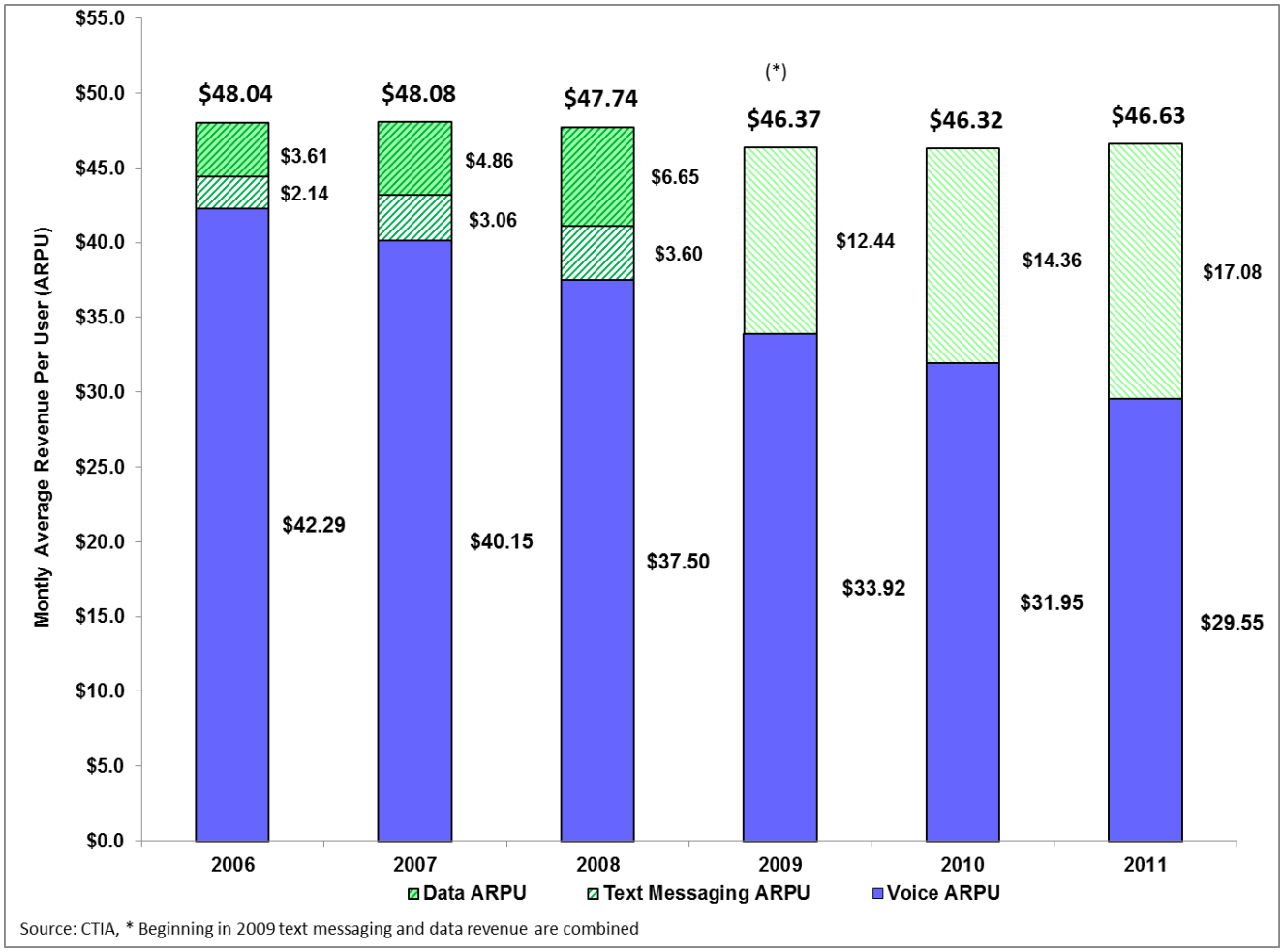
**ARPU**

5.56 The FCC released 16th Annual Mobile Competition Report[12] on 21st March 2013. The trends are reflected in the chart below shows changes in the Average Revenue per User (ARPU) in context of data and voice segments. The chart shows an overall decline, with falling voice ARPU not quite counterbalanced by increases in data revenue.

[11] Weighted average megahertz is the sum of the provider's MHz-POPs, divided by the U.S. population (2010 Census).

[12] http://www.fcc.gov/document/16th-mobile-competition-report

**Chart 5.1:Voice and Data ARPU in US**




5.57 The major operator wise latest ARPU figures for wireless carriers in the United States from 1st quarter 2013 to 2nd quarter 2014[13] as indicated by www.statistica.com are tabulated in the table below.

[13] http://www.statista.com/statistics/283513/arpu-top-wireless-carriers-us/

Table 5.6 Operator wise ARPU figures in USA

| | Verizon Wireless | AT&T | Sprint Nextel | T-Mobile USA | Clear wire | MetroPCS | U.S. Cellular | Leap Wireless | Ntelos | Cincinnati Bell |
|---|---|---|---|---|---|---|---|---|---|---|
| Q1 '13 | 54.67 | 46.89 | 50.27 | 39.71 | 11.13 | 40.96 | 57.63 | 43.72 | - | - |
| Q2 '13 | 55 | 47.67 | 51.72 | 38 | 11.34 | - | 57.45 | 44.89 | - | - |
| Q3 '13 | 55.57 | 47.49 | 51.5 | 45.38 | - | - | 58.36 | 45.45 | - | - |
| Q4 '13 | 55.46 | 47.58 | 50.94 | 44.5 | - | - | 57.05 | 45.3 | - | - |
| Q1 '14 | 55.78 | 45.98 | 50.67 | 44.38 | - | - | 60.19 | - | 53.31 | 42.14 |
| Q2 '14 | 55.42 | 43.41 | 50.19 | 44.1 | - | - | 60.32 | - | 53.2 | |

**Wireless Resellers or MVNOs**

5.58 Resellers and mobile virtual network operators (MVNOs) generally do not own any network facilities but instead purchase mobile wireless services wholesale from facilities-based providers and resell the services to consumers. MVNOs may target their service and product offerings at specific demographic, lifestyle, and market niches, including consumers who are low income, are relatively price sensitive, do not want to commit to multi-year subscription contracts, have low usage needs, or do not want to buy a bundle that contains unwanted data services.

5.59 MVNOs (Mobile Virtual Network Operators) are regulated like Commercial Mobile Radio Service ("CMRS") providers. MVNOs in USA must comply with the following:

- International Authorization (214)

  All entities that plan to provide any international telecommunications service must obtain a Section 214 license from the FCC before providing service. This requirement extends to all

telecommunications service providers that transport traffic to or from the United States.

- FCC Registration and Reporting

  Form 499-A

  All telecommunications and VoIP Service Providers must register with the FCC before providing interstate telecommunications or interconnected VoIP service by filing FCC Form 499 with the FCC.

  Form 499-Q

  Most carriers are required to contribute to the maintenance of universal service support mechanisms by filing quarterly FCC Forms 499-Q. This includes all FCC Form 499-A filers with interstate end-user telecommunications revenues that are sufficiently large to result in an annual contribution of $10,000 or more.

- State registration/certification

  Providers seeking to offer intrastate services must obtain authorization from the Public Utilities Commission or relevant authority with jurisdiction over intrastate telecommunications service before providing service in the state.

- Customer Proprietary Network Information (CPNI)

  MVNO Service Providers must file an annual Customer Proprietary Network Information ("CPNI") Certification with the FCC certifying compliance with the FCC's CPNI rules.

- E911 fees

  The amount of the fees or charges imposed for the implementation and support of 911 and E911services.

- Hearing Aid Compatibility

  MVNOs and other wireless Service Providers that offer handsets for sale must comply with the FCC's Hearing Aid Compatibility ("HAC") rules.

- State Requirements

States do not regulate rates or entry of wireless services into the market. But, states can require that wireless providers and resellers register before providing service. Some states expressly require MVNOs to register and provide corporate information. MVNOs can also fall subject to a variety of taxes and fees at the state level, including public utility commission fees, E-911 surcharges, local taxes and state USF liability.

5.60 In USA the relationship between an MVNO and its hosting facilities-based provider is a mutually beneficial strategic partnership. Comprehensive data on MVNO subscribers are generally not reported by either MVNOs or facilities-based providers that host MVNOs. Estimates of the number of MVNOs operating in the United States vary considerably. Many MVNOs are privately-held companies that do not publicly report financial or subscriber data.

5.61 Many of the facilities-based providers include the subscribers of providers reselling their services in their own subscriber counts as a standard practice. Some facilities-based providers report wholesale connections in combination with other connections, such as (data centric) connected device connections (e.g. Sprint), and others report them separately (e.g. AT&T and T-Mobile). No provider disaggregates wholesale connections to the level of the individual MVNOs hosted on their networks. For the above reasons, the reported data on MVNOs are generally inadequate for identifying the host facilities-based providers of all the MVNOs and the customer figures of the MVNOs. However, according to FCC, an estimated ten percent of all mobile wireless connections were reseller connections in December 2011 and the figure was nine percent in December 2010.

5.62 The largest MVNO is TracFone Wireless (TracFone), which had more than 19 million subscribers in the United States, giving it a subscriber base in the United States that is larger than every facilities-based provider other

than the four nationwide providers. TracFone is the largest operator in the U.S. prepaid cellular market. The MVNO Tracfone targets the prepaid customer segment as well as low-usage customers whom other prepaid Service Providers are reluctant to target because the ARPU they generate is so low. TracFone offers mobile wireless services through agreements with various Service Providers in the United States, including AT&T, T-Mobile, Sprint-Nextel, and Verizon Wireless.

5.63 While MVNOs compete for retail customers with some facilities-based providers, facilities-based providers compete with each other for wholesale customers. Some facilities-based providers, especially those that specialize in pre-paid plans, compete with MVNOs. Unlike facilities-based providers, MVNOs do not engage in the full range of non-price rivalry such as creating capacity through network investments, network upgrades, or network coverage.

5.64 Some facilities-based providers buy capacity wholesale and engage in resale to complement their own service offerings. A facilities-based provider that also resells services and is generally motivated by the desire to expand its geographic coverage outside of its network coverage area or to add service offerings that are not available on its own network by reselling the services of another provider.

5.65 As per the figures available with MVNO Dynamics, there are approximately 140 MVNOs operational in US as on Q1 2014, these MVNOs are parented with four MNOs.

**South Africa**

5.66 South Africa passed a legislation to promote convergence in the broadcasting and telecommunication sector called Electronic Communication Act, 2005 (No. 36 of 2005]. The licensing framework proposed in the said legislation has the following license categories.

5.67 Electronic Communications Network Service [ECNS]: This License which covers any system of electronic communication facilities used for the conveyance of electronic communication including without limitation: Satellite Systems, Fixed Systems, Mobile systems, Fibre optic cables, electric cable systems, other transmission systems etc.

5.68 Electronic Communication Service License [ECS]: This license cover any service provided to the public, the state, or the subscribers to such service, which consists wholly or mainly of the conveyance by any means of electronic communications over an electronic communication network, but excludes broadcasting.

5.69 Broadcasting Service License – covers any broadcasting services conveyed by means of electronic communication network. Radio Frequency Spectrum Licence which is a licenceauthorising the holder to use the radio frequency spectrum.

5.70 The Independent Communication authority of South Africa (ICASA), amended the standard terms and conditions for Individual and Class Licenses as well as amendments to the processes and procedures of Individual and Class Licenses through Regulations for Individual and Class Licences in 2010. Through the amendment the regulator equated the duration of the Electronic Communications Network Service and Electronic Communication Service license in order to bring more efficiency in terms of licensee's business and investment plan. The ICASA under its Electronic Communications Act, 2005, also notified the General License Fees Regulations, 2012. The following fee structure as mentioned in Table 5.7 was incorporated through the regulation.

Table 5.7: Administrative fee for Individual Licenses (Figures in RAND)

| Service Type | Initial Application for license | Application for amendment of license | Application for renewal of license | Application for transfer of license |
|---|---|---|---|---|
| Electronic Communications Network Services | As specified in ITA | 52,000 | 5200 | 52,000 |
| Electronic Communications Services | As specified in ITA | 52,000 | 5200 | 52,000 |
| Broadcasting Services | As specified in ITA | 52,000 | 5200 | 52,000 |

**Annual License Fee**

5.71 The Annual License Fees payable by Licensees in accordance with these regulations are to be calculated using the formula set out herein

Pa = Payable Annual license Fee

R = Revenue from licensed services

B = applicable percentage per table below dependent on license revenue

Pa= R x B

| License Revenue (R) | Percentage Applied (B) |
|---|---|
| 0-50,000,000 | 0.15% |
| 50,000,001-100,000,000 | 0.20% |

| | |
|---|---|
| 100,000,001-500,000,000 | 0.25% |
| 500,000,001-1,000,000,000 | 0.30% |
| 1,000,000,001 and above | 0.35% |

**ARPU**

5.72 As per data published on ICASA website[14], the ARPU figures are available only for two operators. The ARPU reported by MTN South Africa for the year 2011 was at (South African RAND) 134/12.22 US$ and ARPU reported by Vodacom South Africa for the year 2012 stood at (South African RAND) 157/ 14.31 US$.

**MVNO status in South Africa**

5.73 The Virgin Mobile becomes first MVNO in South Africa as a JV between Virgin Group and Cell C.It uses Cell C's network for access, it grabs 400k subscribers as on August 2012 whereas 80% of them belong to prepaid segment. Another MVNO Econet Wireless launched in 2009 also uses Cell C network, through prepaid offerings it provide discounted calls to Lesotho and Zimbabwe. Econet wireless sold 500K SIMs as on September 2010. Few more MVNO are planning to launch the services but the market conditions are not much favorable.

5.74 There has been slow response to the MVNOs in South Africa, therefore the MVNO business in has not picked up so far. Apart from low ARPU, the regulatory issues and high interconnection charges is also considered a roadblock to the entry of the MVNO.

[14] http://ictindicatorportal.icasa.org.za/Portal/index.php?p=125

**Botswana**

5.74 Botswana Telecommunications Authority (BTA) after duly Consultation with stakeholders in 2012 issued Facility Based Operator (FBO) guidelines in 2013. As per the guidelines the license in issued for 15 years and Licensee has to pay P 250000 (US $ 28,000) as annual fee of operation of license, P 250000 (US $ 28,000) as annual fee for provision of the Licensed Services and turnover related fee equal to 3% of a annual Gross Turnover quarterly in arrears.

5.75 Under primary obligations, the licensee shall provide service Licensesed Service to Other operators limited to the services which are specifically outlined at Schedule 1 of the guidelines. The Licensee, before deploying any new infrastructure or offering new services, shall submit a detailed business plan clearly indicating the roll out programme and pricing to the regulator for at least sixty days before such roll out.

5.76 The Licensee shall comply with and integrate the Emergency Service into a National Emergency Service Coordination Programme in coordination with other operators. The licensee shall comply with all technical specification Regulations and directives issued by the BTA and shall all time observe the provisions of International Telecommunications Conventions concerned with the Botswana.

5.77 The Licensee shall submit in writing a proposal in respect of tariffs it intends to apply for the Licensed Service and shall offer the Licensed Services to Other Operators at the rates no higher than then the prevailing approved tariffs. It shall establish and maintain separate accounts for the provision of different products or services including; leased capacity and any other product or service as may be specified by the BTA.

5.78 The licensee shall manage all of its finances relating to its provision of Licensed Services in accordance with the 'International Accounting Standards' and shall keep written records in comprehensive detail

relating to the Licensed Network and the Licensed Services as established from time to time by the Authority. It shall retain network and performance related data of minimum one year and all financial records shall be retained by five years. The Licensee shall submit a Financial and Operational Report ('Annual Report') to the BTA within the completion of 120 days of each financial year.

5.79 The Licensee shall have right to interconnect its Licensed System with the Licensed System of any other Operator, at any technically feasible point and on fair and reasonable terms. The License shall enter into an agreement with other party and copy of the Interconnection agreement shall be submitted to the BTA. Either party to the proposed agreement may refer the dispute to the BTA. The BTA reserve the right, after consulting the Licensee and other stakeholders to issue guidelines in relation to Interconnection and access.

5.80 The licensee shall offer to make Leased Capacity available to Other Operators, including on any circuit, fibre or cable link or satellite uplink it may own or control in and from Botswana and shall offer to access any essential facility it may own or control.

5.81 The licensee shall offer to provide to other Operators on a fair wholesale basis the facilities or services they may require from the Licensee in order to provide any retail product or service. In case agreement on wholesale terms cannot be reached between the Licensees and any other operator within 30 days of initial request, the either party may approach to the BTA for dispute resolution.

5.82 The Licensee shall permit the connection to the Licensed System of any lawful and type-approved Telecommunications I Equipment by the Other Operators.

5.83 The Licensee shall apply with full justification, for the use of frequency spectrum for the purposes of operating the licensed system. The frequencies may be assigned on a competitive basis or any other form that BTA deemed appropriate. The licensee shall pay any applicable

annual fee s due under the Radio Licenses. The licensee shall also comply with Quality of Service Standards defined from time to time by eth BTA.

5.84 BTA may impose penalty it deemed fit in the event of breach of any of the condition of the License. Assignment, transfer or sub-license is prohibited.

5.85 BTA reserves right to revoke the license if the Licensee fail to pay any fees or penalty due under this License, or fail to remedy any material breach of any condition or if licensee is placed into liquidation or under a provisional or final judicial management order.

**Tanzania**

5.86 The Tanzania Communications Regulatory Authority has a converged licensing framework for Tanzania.

**License Classification**

The licensing framework in Tanzania classifies licences in three groups:-

a) **Individual licence:** Licences issued under this group are those which have big economical and social impact and regulatory obligations. Example; Earth Stations, Fixed links and cables Public Payphone facilities, Radio communications transmitters and links, Satellite hubs, Satellite control station, Space station, Submarine cable landing centre, Switching centre, Tower, poles, ducts and pits used in conjunction with other network facilities, Bandwidth services, Broadcasting distribution services, Cellular mobile services, Access applications service, PSTN, Public cellular services, IP telephony, Public payphone service, Satellite broadcasting, Broadcasting Terrestrial free to air TV, Terrestrial radio broadcasting, Public switched data service, Space Service.

   These licences shall be issued conditionally through competitive process.

**b) Class Licence:-** are type of licences which have lesser social and economic impact. These licences may be issued unconditionally.

**c) Exempt Licence**:- These licence need only registration with the Authority

5.87 This includes the following four categories of licences:-

i. Network Facility Licence (NF): This licence authorizes ownership and control of electronic communication infrastructure. Examples of facilities within the scope of this licence include Earth Stations, Fixed links and cables, Public Payphone facilities, Radio communications transmitters and links, Satellite hubs, Satellite control station, Space station, Submarine cable landing centre, Switching centre, Tower, poles, ducts and pits used in conjunction with other network facilities.

ii. Network Service Licence (NS): This gives authorization to operate electronic communication networks in order to deliver services. Examples of network services are Bandwidth services, Broadcasting distribution services, Cellular mobile services, Access applications service, Space Segment Services.

iii. Application Service Licence (AS): – This licence authorizes reselling or procurement of services from Network Service operators. The salient feature of this licence is that the licensee does not own network infrastructure nor operate network. Examples are internet providers, virtual mobile provider, payphone services, PSTN, Public cellular services, IP telephony, Public payphone service, Public switched data service.

iv. Content Service Licence (CS): – Authorizes the provision of content such as Satellite broadcasting, Broadcasting Terrestrial free to air TV, Terrestrial radio broadcasting and other electronic media.

An applicant applying for this licence shall submit the following apart from the general guidelines for Individual Licenses

| Individual License Type | Specific requirement other than general requirement |
|---|---|
| Network Facility Services | a) Technical specifications for interoperability and compatibility of the system with other systems;<br>b) Network roll-out plan and its implementation schedule.<br>c) Tariff structure.<br>d) Availability of emergency services.<br>e) Network plan and construction<br>f) Performance guarantee |
| Network Services | a) Interoperability and compatibility of the system with other systems;<br>b) Tariff structure;<br>c) Availability of emergency services. |
| Content Services | a) A valid trading licence<br>b) Applications for licences must be accompanied by a summary of essential features of the application. |

**Lebanon**

5.88 Licenses for provision of Telecommunications Services are classified TRA as Restricted Licenses, Individual Licenses, Class Licenses. Each of these licenses is processed according to a different procedure outlined in the Licensing Regulation according to the criteria required for the licensing, provision of service and operation of facilities. MVNOs and FVNOs are

issued Individual licenses. Such licenses can be issued unlimited in numbers.

5.89 Licenses can be obtained by any legal entity registered in Lebanon and satisfying non-competitive minimum eligibility criteria. Application can be submitted any time and there is no competitive process. Approval of the Authority required for issuing licenses to MVNOs. MVNO Licensee posses right to build facilities but roll out obligation is not on their part.

**Individual licenses**

(i) Broadband Access Licenses without spectrum
(ii) MVNOs and FVNOs
(iii) Public Access Mobile Radio
(iv) Pagers
(v) Satellite telephony provider
(vi) Fixed Satellite Earth Station (send/receive)
(vii) VSAT

**Class Licenses**

(i) ISP
(ii) Value added Services
(iii) Resale of any services
(iv) Woreless zone Internet access
(v) Satellite telephony user
(vi) Wireless fixed closed user group license
(vii) Private mobile radio
(viii) Citizen band radio
(ix) Amateur frequency license
(x) Maritime, distress, public safety, radio navigation frequency license
(xi) Low power wireless networks

(xii) Satellite News Gathering (SNG)

(xiii) Fixed Earth Station (receive only)

**France:**

5.90 Mobile operators in France can use to share their networks, each with a varying degree of integration. The network can be shared by the ways of roaming, the MVNO model, active mobile network sharing and sharing passive infrastructure. Network sharing has helped to promote effective competition, while furthering regional development in a way that benefits consumers. Lowering the barriers to entry for operators that have no spectrum resources, i.e. MVNOs or network operators that have joined the market more recently.

5.91 Prior to 2010, there were three 3G licensees – Orange France ("Orange"), Société Francaise du Radiotéléphone ("SFR") and Bouygues Telecom ("Bouygues") – who are also the three incumbent 2G operators.

**MVNOs in France**

**Service-based competition**

5.92 When competing with network operators, MVNOs often seek to differentiate themselves by targeting specific forms of distribution or market segments, or by bundling their plans with other services. MVNOs have been affected in different ways by the arrival of the fourth mobile network operator (MNO). However, unlike MNOs, virtual network operators continue to have more pay-as-you-go customers than customers on a set plan.

5.93 The fourth 3G licence was assigned to Free Mobile on 12 January 2010; there remained a 5 MHz block of spectrum and a 4.8 MHz block of spectrum in the 2.1 GHz frequency band. The application procedure for the allocation of this remaining spectrum was issued on 25 February 2010. Three companies submitted applications namely Free Mobile,

Orange France and SFR on 11 May. For assignment of these blocks, the applications were assessed based on two criteria:

i. the commitments made to improving hosting conditions for mobile virtual network operators (MVNOs), for which the different levels suggested in the procedure are included in the appendix;

ii. and the financial amount bid.

5.94 Under the terms of 3G[15][16] (SFR and Orange) and 4G (all four) licences, mobile network operators are required to host MVNOs on their network. The applicants were asked to indicate the level of commitment for MVNO hosting, from among those listed below, that they would make for each of the blocks of spectrum. The ARCEP Chairman quoted that :

*"that network operators must not impose any technical or pricing barriers (volume caps, pricing structure of wholesale agreements creating a lock-in effect, bandwidth caps, access to femtocell or location-based services) that would run the risk of putting MVNOs at a competitive disadvantage;";*

*"that commitments tied to the allocation of 4G spectrum, to which the the four network operators agreed voluntarily (hosting full MVNOs, reasonable pricing) must apply fully even before MNOs roll out their first 4G plans commercially, to ensure that MVNOs are able to introduce similar offers at the same time those being marketed by their host operators".*

5.95 Each level of commitment was attached to a coefficient multiplier ranging from 1 to 2. To rank the offers submitted by the applicants, the financial amount that each candidate bid was multiplied by this coefficient as given in the Table 5.8.

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http://www.arcep.fr/index.php?id=8571&tx_gsactualite_pi1%5Buid%5D=1254&tx_gsactualite_pi1%5Bannee%5D=&tx_gsactualite_pi1%5Btheme%5D=&tx_gsactualite_pi1%5Bmotscle%5D=&tx_gsactualite_pi1%5BbackID%5D=26&cHash=06769b1919&L=1

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http://www.arcep.fr/index.php?id=8571&L=1&tx_gsactualite_pi1%5Buid%5D=1278&tx_gsactualite_pi1%5Bannee%5D=&tx_gsactualite_pi1%5Btheme%5D=&tx_gsactualite_pi1%5Bmotscle%5D=&tx_gsactualite_pi1%5BbackID%5D=26&cHash=45511b9001

Table 5.8

| | Hosting commitment | Increased technical commitment | Increased economic commitment | Coefficient multiplier |
|---|---|---|---|---|
| Level 0 | | | | 1 |
| Level 1 | X | | | 1.5 |
| Level 2 | X | X | | 1.75 |
| Level 3 | X | X | X | 2 |

SFR and Orange France both made a level 1 commitment, which corresponds to a commitment to "*grant all reasonable demands for access to their network*". They also made the commitment that hosting conditions "*would not unjustifiably impede the goal of achieving competition in the wholesale market for hosting MVNOs or MVNOs' commercial autonomy in the retail market*". The operators must also "*offer MVNOs that are already hosted on their networks the option of amending the terms of their contracts as soon as possible, to allow them to benefit from these new commitments*".

5.96 On 18 May 2010, ARCEP selected the applications for each of the two blocks: the one submitted by SFR for the 5 MHz block and the one submitted by Orange France for the 4.8 MHz block. Both the operators chose commitment level 1 for hosting MVNOs. The two goals that had been set for the procedure by the regulator ARCEP namely to make significant improvements to the hosting conditions offered to MVNOs and to bring in substantial revenue for the State were therefore achieved.

5.97 Consequent upon the award of license Free Mobile as 4th 3G Operator in France, and assignment of remained one 5 MHz block of spectrum and one 4.8 MHz block of spectrum in the 2.1 GHz frequency band, the position of spectrum holdings is illustrated in the table below.

Table 5.9: Spectrum holdings in France after award of fourth License and redistribution

| Frequency Band | Orange France* | | SFR* | | Bouygues Telecom | Free Mobile |
|---|---|---|---|---|---|---|
| 900 MHz | 2x10 MHz | | 2x10 MHz | | 2x9.8 MHz | 2x5 MHz |
| 1800 MHz | 2X23.8 MHz | | 2x23.8 MHz | | 2x26.6 MHz | |
| 2100 MHz (FDD) | 2x14.8 MHz | 2x5 MHz | 2x14.8 MHz | 2x4.8 MHz | 2x14.8 MHz | 2x5 MHz |
| 2100 MHz (TDD) | 1x5 MHz | | 1x5 MHz | | 1x5MHz | |

Note:*Orange France and SFR allocated remaining 5MHz and 4.8 MHz spectrum in 2100 MHz band in May 2010

**The full-MVNO model**

5.98 In order to facilitate the full MVNO contracts a new wholesale business model was created for certain mobile virtual network operators (MVNO) in 2011. These operators have core network elements and purchase only access to the wireless local loop from their host operators. Full MVNO have control over their interconnection with other operators, and enjoy greater commercial and technical autonomy. Full MVNOs are in a better position to leverage competition between host network operators. The first full-MVNO agreements between a network operator and a virtual network operator were signed in 2011. These mark a positive step towards enabling MVNOs to become more autonomous in their business practices.

5.99 In France MVNOs acquire wholesale solutions from mobile network operators to be able to sell telephone and mobile internet products in the retail market. They engage in service-based competition as full-fledged operators in that they supply their own products, independently from their host operators.

5.100 In 4G segment, there are four mobile network operators – Orange, SFR, Bouygues Telecom and Free Mobile – and one virtual network operator (MVNO): EI Telecom (under the brands NRJ mobile, Credit Mutuel mobile and CIC mobile) selling 4G plans using Orange network. A second MVNO (Oméa Telecom via the Virgin Mobile brand) introduced a 4G "compatible" plan, in an agreement with Bouygues Telecom.

5.101 As per data available with MVNO Dynamics, there are 40 MVNOs operational in France. In the first quarter of 2014, MVNOs had an 11.3% market share. The ARPU in mobile retail segment is around € 25-27 across the various operators.

## CHAPTER VI: ISSUES FOR CONSULTATION

**Q1. (a) Is there any need to introduce more competition in service delivery by the way of introduction of VNOs in the sector? If not, why not?**

**(b) If yes, is it the right time to introduce VNOs?**

**Q2. Will VNOs pose a threat to NSOs or will they complement their operations? Justify your answer.**

**Q3. How can effective utilization of existing infrastructure be improved? Can VNOs be a solution to achieve targets defined in NTP-2012 for rural density?**

**Q4. Does there exist a business case for introduction of VNOs in <u>all</u> segments of Voice, Data and Videos?**

**Q5. Whether VNOs be introduced in <u>all</u> or <u>some</u> of the services notified in the UL? Please name the services and the justification.**

**Q6. Is there sufficient infrastructure (active and passive including access spectrum) available with a TSP to meet its own requirements? Can TSPs spare available infrastructure for VNOs?**

**Q7. If any TSP is able to share its infrastructure with VNOs, what should be the broad terms and conditions for sharing the infrastructure?**

**Q8. Should VNOs be allowed to create their own infrastructure to reach out to niche markets? If yes, to what extent?**

**Q9. Should Local Cable Operators (LCOs) or Multi System Operators(MSOs) with cable networks be permitted to share infrastructure with VNOs to provide last mile connectivity?**

**Q10. Does the adoption of the VNO model requires an entirely new licensing regime or will a chapter or a separate section for VNOs added to the existing UL suffice?**

**Q11. Comment on what measures are required to ensure that the existing or new licensing regime takes care of future requirements of technological development and innovation and provides a clear roadmap for migration to existing service providers.**

**Q12. In view of the complexity in the existing licensing regime as explained in Para 3.16 to 3.18, Should India move towards NSO and VNO based licensing?**

**Q13. If yes, whether existing licensees may be mandated to migrate to NSO & VNO based new licensing regime? What challenges will arise in the migration to the two types of licensing framework?**

**Q14. Should a VNO be issued a license at the National Level, or for LSAs as in the case of UL or should it be based on the host NSO license areas?**

**Q15. What should be the duration of a VNO's license? Should it be linked with the license of the NSO or should it be for 20 years, as in the case of UL?**

**Q16. Should there be any cap on the number of VNOs in a service area for a particular service? If yes, what should be the number? Please provide (a) service wise and (b) service area-wise numbers with justification.**

**Q17. Should there be restriction on number of VNOs parented to a NSO? Justify your answer.**

**Q18. Alternatively, should one VNO be permitted to parent more than one NSO per LSA?**

**Q19. What should be the eligibility conditions for becoming a VNO?**

**Q20. Whether an existing Unified Licensee with authorisation to provide <u>all</u> services shall be eligible to become a VNO of another Licensee in the same or other LSA? Or, will it need separate/additional**

**authorisation to work as a VNO for delivering services for which it does not have access spectrum?**

**Q21. Should there be any cross-holding restriction between a NSO and VNOs? If yes, please quantify the same with justification.**

**Q22. What should be the financial obligations of VNOs in the form of a) Equity & Networth b)Entry Fee c)PBG and d)FBG etc.? Please quantify the same with justification.**

**Q23. Should a VNO utilise numbering resources, Network Codes and Locational Routing Number (LRN) of the NSO? Or, should the Licensor allocate separate numbering resource, Network Codes and Locational Routing Number(LRN) directly to a VNO?**

**Q24. What operational difficulties could arise in the above arrangements?**

**Q25. In case your reply is that the Licensor allocates numbering resource to the VNO, then how can it be ensured that the resources allocated to a VNO are efficiently utilised? Should any obligation be placed on VNOs for efficient utilisation of resources?**

**Q26. Should the LF and SUC applicable to the VNO be as per stipulated conditions of authorisation in UL? Or, should it be treated differently for VNO? Please quantify your answer with justification.**

**Q27. Should an NSO be mandated to provide access to its network to a VNO in a time-bound manner or should it be left to their mutual agreement.**

**Q28. How can MNP be facilitated in the VNO/NSO model? Can the VNO be treated separately for MNP purposes? Or, should MNP be facilitated only through the network of the NSO?**

**Q29. Who is to be held responsible for CAF verification and number activation, the NSO, the VNO or both?**

**Q30. Should an NSO or VNO or both be responsible for maintaining QoS standards as per TRAI's regulations?**

**Q31. How should Mergers & Acquisitions be dealt with in the VNO/NSO licensing model? Should the recently announced M&A guidelines issued by the Government for existing players be extended to cover VNOs? Or, should their M&A be treated separately?**

**Q32. Should the VNO be treated equivalent to the NSO/ existing TSPs meeting obligations arising from Tariff orders/regulations /directions etc. issued by TRAI from time to time?**

**Q33. Please give your comments on any related matter not covered in this Consultation paper.**

## LIST OF ACRONYMS

| S1 No. | Acronyms | Description |
|---|---|---|
| 1. | AGR | ADJUSTED GROSS REVENUE |
| 2. | AGTO | ANNUAL GROSS TURN OVER |
| 3. | ARCEP | AUTORITÉ DE RÉGULATION DES COMMUNICATIONS ÉLECTRONIQUES ET DES POSTES |
| 4. | ARPU | AVERAGE REVENUE PER USER |
| 5. | ASP | APPLICATION SERVICE PROVIDER |
| 6. | BSNL | BHARAT SANCHAR NIGAM LIMITED |
| 7. | BTA | BOTSWANA TELECOMMUNICATIONS AUTHORITY |
| 8. | CA | COMMUNICATION AUTHORITY |
| 9. | CAF | CUSTOMER APPLICATION FORM |
| 10. | CASP | CONTENT APPLICATION SERVICE PROVIDER |
| 11. | CDMA | CODE DIVISION MULTIPLE ACCESS |
| 12. | CMRTS | CAPTIVE MOBILE RADIO TRUNKING SERVICE |
| 13. | CMSP | CELLULAR MOBILE SERVICE PROVIDER |
| 14. | CMTS | CELLULAR MOBILE TELEPHONY SERVICE |
| 15. | CP | CONSULTATION PAPER |
| 16. | DoT | DEPARTMENT OF TELECOMMUNICATION |
| 17. | FBG | FINANCIAL BANK GUARANTEE |
| 18. | FBL | FACILITY BASED LICENSE |
| 19. | FBO | FACILITY BASED OPERATOR |
| 20. | FBP | FACILITIES-BASED PROVIDER |
| 21. | FCC | FEDERAL COMMUNICATIONS COMMISSION |
| 22. | GDP | GROSS DOMESTIC PRODUCT |

| | | |
|---|---|---|
| 23. | GMPCS | GLOBAL MOBILE PERSONAL COMMUNICATION BY SATELLITE |
| 24. | GoI | GOVERNMENT OF INDIA |
| 25. | GSM | GLOBAL STANDARD FOR MOBILE |
| 26. | GSMA | GSM ASSOCIATION |
| 27. | HHI | HERFINDAHL HIRSCHMAN INDEX |
| 28. | HTS | HIGH THROUGHPUT SATELLITE |
| 29. | ICASA | INDEPENDENT COMMUNICATION AUTHORITY OF SOUTH AFRICA |
| 30. | ICT | INFORMATION AND COMMUNICATION TECHNOLOGY |
| 31. | IDA | INFOCOMM DEVELOPMENT AUTHORITY |
| 32. | ILD | INTERNATIONAL LONG DISTANCE |
| 33. | ILDO | INTERNATIONAL LONG DISTANCE OPERATOR |
| 34. | IMT | INTERNATIONAL MOBILE TELECOMMUNICATIONS |
| 35. | INSAT | INDIAN NATIONAL SATELLITE |
| 36. | IP | INTERNET PROTOCOL |
| 37. | IP-I | INFRASTRUCTURE PROVIDERS-CATEGORY-I |
| 38. | IP-II | INFRASTRUCTURE PROVIDERS-CATEGORY-II |
| 39. | IPLC | INTERNATIONAL PRIVATE LEASED CIRCUIT |
| 40. | IPTV | INTERNET PROTOCOL TELEVISION |
| 41. | ISP | INTERNET SERVICE PROVIDER |
| 42. | ISP | INTERNET SERVICE PROVIDERS |
| 43. | ITA | INVITATION TO APPLY |
| 44. | JV | JOINT VENTURE |
| 45. | LCO | LOCAL CABLE OPERATORS |
| 46. | LF | LICENSE FEE |

| | | |
|---|---|---|
| 47. | LRN | LOCATIONAL ROUTING NUMBER |
| 48. | LSA | LICENSED SERVICE AREAS |
| 49. | LTE | LONG TERM EVOLUTION |
| 50. | M2M | MACHINE TO MACHINE |
| 51.M | MCMC | MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION |
| 52. | MNO | MOBILE NETWORK OPERATORS |
| 53. | MNP | MOBILE NUMBER PORTABILITY |
| 54. | MOST | MOBILE OPERATOR SHARED TOWER |
| 55. | MSC | MOBILE SWITCHING CENTRE |
| 56. | MSO | MULTI SYSTEM OPERATORS |
| 57. | MSS | MOBILE SATELLITE SYSTEM |
| 58. | MTNL | MAHANAGAR TELEPHONE NIGAM LIMITED |
| 59. | MVNO | MOBILE VIRTUAL NETWORK OPERATORS |
| 60. | NFP | NETWORK FACILITY PROVIDER |
| 61. | NGN | NEXT GENERATION NETWORK |
| 62. | NLD | NATIONAL LONG DISTANCE |
| 63. | NSO | NETWORK SERVICE OPERATOR |
| 64. | NSP | NETWORK SERVICE PROVIDER |
| 65. | NTP | NATIONAL TELECOM POLICY |
| 66. | OFC | OPTICAL FIBRE CABLE |
| 67. | OPEX | OERATING EXPENSE |
| 68. | OTT | OVER THE TOP |
| 69. | PBG | PERFORMANCE BANK GUARANTEE |
| 70. | PCP | PRE-CONSULTATION PAPER |

| | | |
|---|---|---|
| 71. | PMRTS | PULIC MOBILE RADIO TRUNKING SERVICE |
| 72. | PNETS | PUBLIC NON-EXCLUSIVE TELECOMMUNICATIONS SERVICE |
| 73. | PSTN | PUBLIC SWITCH TELEPHONE NETWORK |
| 74. | PTL | PUBLIC TELECOMMUNICATION LICENSEE |
| 75. | QoS | QUALITY OF SERVICE |
| 76. | RAN | RADIO ACCESS NETWORK |
| 77. | SBL | SERVICE BASED LICENSE |
| 78. | SBO | SERVICE BASED OPERATOR |
| 79. | SBP | SERVICE BASED PROVIDER |
| 80. | SDO | SERVICE DELIVERY OPERATOR |
| 81. | SUC | SPECTRUM USAGE CHARGES |
| 82. | TDD | TIME DIVISION DUPLEX |
| 83. | TRA | TELECOMMUNICATIONS REGULATORY AUTHORITY |
| 84. | TSP | TELECOM SERVICE PROVIDERS |
| 85. | UAS | UNIFIED ACCESS SERVICE |
| 86. | UASL | UNIFIED ACCESS SERVICE LICENSE |
| 87. | UCL | UNIFIED CARRIER LICENCE |
| 88. | UL | UNIFIED LICENCE |
| 89. | USO | UNIVERSAL SERVICE OBLIGATION |
| 90. | USF | UNIVERSAL SERVICE FUND |
| 91. | VAS | VALUE-ADDED SERVICE |
| 92. | VNO | VIRTUAL NETWORK OPERATOR |
| 93. | VoIP | VOICE OVER INTERNET PROTOCOL |
| 94. | VSAT | VERY SMALL APERTURE TRMINAL |
| 95. | VSNL | VIDESH SANCHAR NIGAM LIMITED |

**Annexure-I**

**F.No.800-23/2011-VAS**
**Ministry of Communication & IT**
**Department of Telecommunication**
**Sanchar Bhawan, New Delhi**
**Access Services Wing**

Dated the 7th July, 2014

To

The Secretary
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawaharlal Nehru Marg (Old Minto Road)
New Delhi - 110002

**Subject:** Recommendations for delinking of licencing of networks on delivery of services by way of virtual network operators including associated issues of definition of Adjusted Gross Revenue under unified licencing regime.

Sir,

The Government has announced National Telecom Policy (NTP), 2012 which inter-alia stipulates:-

*"3.3. To move towards Unified Licence regime in order to exploit the attendant benefits of convergence, spectrum liberalisation and facilitate delinking of the licensing of Networks from the delivery of Services to the end users in order to enable operators to optimally and efficiently utilise their networks and spectrum by sharing active and passive infrastructure. This will enhance the quality of service, optimize investments and help address the issue of the digital divide. This new licensing regime will address the requirements of level playing field, rollout obligations, policy on merger & acquisition, non-discriminatory interconnection including interconnection at IP level etc. while ensuring adequate competition.*

*3.8 To facilitate resale at the service level under the proposed licensing regime – both wholesale and retail, for example, by introduction of virtual operators – in tune with the need for robust competition at consumer end while ensuring due compliance with security and other license related obligations."*

2. TRAI has given its recommendation namely, 'Guidelines for Unified Licences / Class Licences and Migration of existing Licensees' on 16.4.2012 which were deliberated by DoT in the context of NTP 2012.

3. DoT had decided in 2013 that Unified licence may be introduced in two phases with delinking of licensing of networks from delivery of services being taken up in a subsequent phase.

4. Accordingly, Telecom Regulatory Authority of India is requested to submit its recommendations for delinking of licensing of networks from delivery of services by way of virtual network operators etc. including associated issues such as Adjusted Gross Revenue , terms of sharing of passive & active infrastructure etc. under unified licensing regime.

**Yours faithfully,**

P.K. Mittal

**(P.K. Mittal)**
**DDG (AS-I)**
**Ph.: 23717050**

**Annexure-II**

**The Authority in its recommendations on 'Telecom Infrastructure Policy' on 12 April 2011, made the following set of revised recommendations on "Mobile Virtual Network Operator (MVNO)".**

1. A Unified licencee who does not possess spectrum should be allowed to work as an MVNO in any licenced service area. The Unified licencee ceases to be an MVNO if it is allocated spectrum for accessing the subscribers.
2. MVNO may be allowed to set up its own infrastructure including MSC, Radio Access Network (RAN)/Base Station Subsystem etc., if required.
3. Commercial model between MVNO and MNO should be left to mutual agreement between the MVNO and MNO subject, however, to the licence conditions of both MVNO and MNO.
4. The Authority recommends that an MVNO should fulfill all the service obligations of the Unified Licence. Allocation of numbers, number portability, interconnection with other Service Providers and roaming to be provided to MVNO by the parent MNO.
5. There should be no restriction on the number of MVNOs attached to a MNO subject, however, to their being only one MVNO in a revenue district.
6. An MVNO cannot get attached to more than one MNO in the same service area.
7. MVNO should pay spectrum charges on its revenue. The applicable slab to MNO will equally be applicable to the MVNO.
8. For counting the roll out obligations, the MNO can take into account the roll out done by the MVNOs attached to it.
9. The Licenced Service Area (circle) of MVNO should be same as that of parent MNO. However, the MVNO could offer service anywhere within the licenced service area (circle) of the parent MNO as specified in the mutual agreement between MNO and MVNO.

10. In case a MVNO attached to a MNO has licence in more than one service area then it will have to have separate agreement for each service area.
11. The scope of service of MVNO would be within the scope of service of MNO, i.e. the MVNO can offer any or all of the services that the MNO can offer subject to the agreement between MNO and MVNO.
12. In case of a dispute between MVNO & MNO, the procedure for resolution of dispute would be same as that being followed for disputes between MNOs.
13. In case MVNO desires to exit the business:
    i. It shall give six months' notice to subscribers, MNO, Licensor and the TRAI before stopping its services.
    ii. Consequent upon (i) above, the MNO should offer its services to the subscribers of MVNO to migrate to any of the tariff plan of MNO without any extra charges such as upfront/ activation charges. In the case of lifetime subscribers, they should be offered life time plan of MNO. The subscriber should be allowed to retain the same number.
14. Responsibility of the Quality of Service to its subscribers would remain with the MVNO. The Regulations/ Direction/ Orders of TRAI in this regard would be binding on MVNO.
15. MVNO being directly responsible for the tariff related matters, MVNOs should independently comply with the applicable Telecom Tariff Orders (TTOs) and tariff related requirements as prescribed by TRAI.
16. Facility based MVNOs who set up their own infrastructure have to ensure that the equipment that they use conforms to the prescribed standards.
17. MVNO should comply with all the requirement of National Security.
18. MVNO should comply with all the reporting requirements of the licensor and the Authority.

**Annexure-III**

Government of India
Ministry of Communications and Information Technology
Department of Telecommunications
Sanchar Bhawan, 20, Ashok Road, New Delhi
(AS-I Division)

No.20-281/2010-AS-I (Volume-VII) Dated: 20th February, 2014

Subject: Guidelines for Transfer/Merger of various categories of Telecommunication service licences/authorisation under Unified Licence (UL) on compromises, arrangements and amalgamation of the companies.

1. National Telecom Policy -2012 envisages one of the strategy for the telecom sector to put in place simplified Merger & Acquisition regime in telecom service sector while ensuring adequate competition. This sector has been further liberalised by allowing 100% FDI. Further, it has been decided in-principle to allow trading of spectrum. The Companies Act of 1956 has also been amended by Companies Act of 2013 and the amendments have been made in reference to compromises/arrangements and amalgamations of companies. SEBI has also prescribed procedure for IPO.

2. The scheme of compromises, arrangements and amalgamation of companies is governed by the various provisions of the Companies Act, 2013 as amended from time to time. Such schemes is to be approved by National Company Law Tribunal to be constituted under the provisions of Companies Act, 2013. Consequently, the various licences granted under section 4 of Indian Telegraph Act, 1885 to such companies need to be transferred to the resultant entity (ies). It is also noted that such schemes may comprise of merger by formation or merger by absorbtion or arrangement or amalgamation etc. of company (ies) and thereafter merging/transferring such licences/authorisation subject to the condition that the resultant entity being eligible to acquire such licence/authorisation in terms of extant guidelines issued from time to time.

3. Earlier department has issued Guidelines for intra service area Merger of Cellular Mobile Telephone Service (CMTS)/ Unified Access Services (UAS)

Licences vide Office Memo No.20-232/2004-BS-III dated 22nd April 2008. Taking into consideration the above and taking into consideration the TRAI's Recommendations dated 11.05.2010 and 03.11.2011 and National Telecom Policy 2012, in supersession of these guidelines, it has been further decided that Transfer/ Merger of various categories of Telecom services licences/ authorisation under UL shall be permitted as per the guidelines mentioned below for proper conduct of Telegraphs and Telecommunication services, thereby serving the public interest in general and consumer interest in particular: -

a) The lisensor shall be notified for any proposal for compromise, arrangements and amalgamation of companies as filed before the Tribunal or the Company Judge. Further, representation/objection, if any, by the Licensor on such scheme has to be made and informed to all concerned within 30 days of receipt of such notice.

b) A time period of one year will be allowed for transfer/merger of various licences in different service areas in such cases subsequent to the appropriate approval of such scheme by the Tribunal/Company Judge.

c) If a licensee participates in an auction and is consequently subject to a lock-in condition, then if such a licensee propose to merge/compromise/arrange/amalgamate into another licensee as per the provisions of applicable Companies Act, the lock-in period would apply in respect of new shares which would be issued in respect of the resultant company (transferee company). The substantial Equity/ Cross Holding clause shall not be applicable during this period of one year unless extended otherwise.This period can be extended by the Licensor by recording reasons in writing.

d) The merger of licenses/authorisation shall be for respective service category. As access service licence/authorisation allows provision of

internet services, the merger of ISP licence/authorisation with access services licence/authorisation shall also be permitted.

e) Consequent to transfer of assets/ licences/authorisation held by transferor (acquired) company to the transferee (acquiring) company, the licences/authorisation of transferor (acquired) company will be subsumed in the resultant entity. Consequently, the date of validity of various licences/authorisation shall be as per licenses/authorisation and will be equal to the higher of the two periods on the date of merger subject to pro-rata payments, if any, for the extended period of the licence/authorisation for that service. However, the validity period of the spectrum shall remain unchanged subsequent to such transfer of asset/licences/authorisation held by the transferor (acquired) company.

f) For any additional service or any licence area/service area, Unified Licence with respective authorisation is to be obtained.

g) Taking into consideration the spectrum cap of 50% in a band for access services, transfer/merger of licences consequent to compromise, arrangements or amalgation of companies shall be allowed where market share for access services in respective service area of the resultant entity is upto 50%. In case the merger or acquisition or amalgamation proposals results in market share in any service area(s) exceeding 50%, the resultant entity should reduce its market share to the limit of 50% within a period of one year from the date of approval of merger or acquisition or amalgamation by the competent authority. If the resultant entity fails to reduce its market share to the limit of 50% within the specified period of one year, then suitable action shall be initiated by the licensor.

h) For determining the aforesaid market share, market share of both subscriber base and Adjusted Gross Revenue (AGR) of licensee in the relevant market shall be considered. The entire access market will be the relevant market for determining the market share which will include wireline as well as wireless subscribers. Exchange Data Records (EDR) shall be

used in the calculation of wireline subscribers and Visitor Location Register (VLR) data or equivalent, in the calculation of wireless subscribers for the purpose of computing market share based on subscriber base. The reference date for taking into account EDR/VLR data of equivalent shall be 31st December or 30th June of each year depending on the date of application. The duly audited AGR shall be the basis of computing revenue based market share for operators in the relevant market. The date for duly audited AGR would be 31st March of the preceding year.

i) If a transferor (acquired) company holds a part of spectrum, which (4.4 MHz/2.5 MHz) has been assigned against the entry fee paid, the transferee (acquiring) company (i.e. resultant merged entity), at the time of merger, shall pay to the Government, the differential between the entry fee and the market determined price of spectrum from the date of approval of such arrangements by the National Company Law Tribunal/Company Judge on a pro-rata basis for the remaining period of validity of the license(s). No separate charge shall be levied for spectrum acquired through auctions conducted from year 2010 onwards. Since auction determined price of the spectrum is valid for a period of one year, thereafter, PLR at State Bank of India rates shall be added to the last auction determined price to arrive at market determined price after a period of one year. In the event of judicial intervention in respect of the demands raised for one time spectrum charges in respect of the spectrum holding beyond 4.4 MHz in GSM band/2.5 MHz in CDMA band before merger in respect of transferee (i.e. acquiring entity) company, a bank guarantee for an amount equal to the demand raised by the department for one time spectrum charge shall be submitted pending final outcome of the court case.

j) The Spectrum Usage Charge (SUC) as prescribed by the Government from time to time, on the total spectrum holding of the resultant entity shall also be payable.

k) Consequent upon the implementation of scheme of compromises, arrangements or amalgation and merger of licenses in a service area thereupon, the total spectrum held by the Resultant entity shall not exceed 25% of the total spectrum assigned for access services and 50% of the spectrum assigned in a given band, by way of auction or otherwise, in the concerned service area. The bands will be as counted for such cap in respective NIAs for auction of spectrum. In respect of 800 MHz band, the ceiling will be 10 MHz. Moreover, the relevant conditions pertaining to auction of that spectrum shall apply. In case of future auctions, the relevant conditions prescribed for such auction shall be applicable. However, in case transferor and transferee company had been allocated one block of 3G spectrum through the auction conducted for 3G/BWA spectrum in 2010, the resultant entity shall also be allowed to retain two blocks of 3G spectrum in respective service areas as a result of compromises, arrangements and amalgamation of the companies and Transfer/Merger of various categories of Telecommunication service licences/authorisation under Unified Licence (UL), being within 50% of spectrum band cap.

l) If, as a result of merger, the total spectrum held by the relevant entity is beyond the limits prescribed, the excess spectrum must be surrendered within one year of the permission being granted. The applicable Spectrum Usage Charges on the total spectrum holding of the resultant entity shall be levied for such period. If the spectrum beyond prescribed limit is not surrendered by the merged entity within one year, then, separate action in such cases, under the respective licenses / statutory provisions, may be taken by the Government for non surrender of the excess spectrum. However no refund or set off of money paid and/or payable for excess spectrum will be made.

m) All demands, if any, relating to the licences of merging entities, will have to be cleared by either of the two licensees before issue of the permission for merger/ transfer of licenses/authorisation. This shall be as per demand

raised by the Government/ licensor based on the returns filed by the company notwithstanding any pending legal cases or disputes. An undertaking shall be submitted by the resultant entity to the effect that any demand raised for pre-merger period of transferor or transferee company shall be paid. However, the demands except for one time spectrum charges of transferor and transferee company, stayed by the Court of Law shall be subject to outcome of decision of such litigation. The one time spectrum charge shall be payable as per provisions in para 3(i) above of these guidelines.

n) If consequent to transfer/merger of licenses in a service area, the Resultant entity becomes a "Significant Market Power" (SMP), then the extant rules & regulations applicable to SMPs would also apply to the Resultant entity. *SMP in respect of access services is as defined in TRAI's "The Telecommunications Interconnect (Reference Interconnect Offer) Regulations, 2002 (2 of 2002)" as amended from time to time.*

4. The dispute resolution shall lie with Telecom Dispute Settlement and Appellate Tribunal as per TRAI Act 1997 as amended from time to time.

5. LICENSOR reserves the right to modify these guidelines or incorporate new guidelines considered necessary in the interest of national security, public interest and for proper conduct of telegraphs.

(R. K. Soni)
Director (AS-I)
For and on behalf of the President of India
Ph. 23036284