



Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

GUIDELINE ON REGULATORY FRAMEWORK FOR 3G MOBILE VIRTUAL NETWORK OPERATORS

16 February 2005

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The information contained in this document is intended as a guide only. For this reason it should not be relied on as legal advice or regarded as a substitute for legal advice in individual cases. Parties should still refer to the legislative provisions contained in the law.

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GLOSSARY

2G	Second Generation Mobile Network
3G	Third Generation Mobile Network
AIP	Applicant Information Package No.1 of 2002
ASP	Application Service Provider
CC&B	Customer Care and Billing
CMA	Communications and Multimedia Act 1998
DBP	Detailed Business Plan
GGSN	GPRS Gateway Service Node
GMSC	Gateway MSC
GPRS	General Packet Radio Service
HLR	Home Location Register
IMSI	International Mobile Subscriber Identity
MCMC	Malaysian Communications and Multimedia Commission
MNO	Mobile Network Operator
MSC	Mobile Switching Centre
MSISDN	Mobile Station Integrated Service Digital Network Number
MVNO	Mobile Virtual Network Operator
NFP	Network Facilities Provider
NSP	Network Service Provider
RNC	Radio Network Controller
SGSN	Serving GPRS Support Node
SIM	Subscriber Identity Module
SMS	Short Messaging Service
SMSC	Short Message Service Centre
TMB	Telekom Malaysia Berhad
VMS	Voice Mail System

MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION
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TABLE OF CONTENT

1.	OBJECTIVE	1
2.	INTRODUCTION	1
3.	BACKGROUND	1
4.	DEFINITION OF MVNO.....	2
5.	TMB'S PROPOSAL.....	3
6.	UMTS's PROPOSAL.....	4
7.	LICENSING REQUIREMENT FOR MVNOs	6
8.	NUMBERING	8
9.	REGULATORY INTERVENTION	9
10.	CONTACTING MCMC.....	9

1. OBJECTIVE

- 1.1 The objective of this guideline is to provide an overview of the regulatory framework for interested parties who wish to establish themselves as 3G mobile virtual network operators ("MVNO").
- 1.2 This guideline is meant to be a general guide only. For further details, interested parties are invited to contact the Regulatory Division of the Malaysian Communications and Multimedia Commission ("MCMC").
- 1.3 This guideline should read together with the Communications and Multimedia Act 1998 ("CMA"), the relevant subsidiary legislations, instruments, guidelines or information papers that have been issued by the MCMC pursuant to the CMA.

2. INTRODUCTION

- 2.1 Telecommunications sector is characterised by huge fixed, sunk and irreversible investment, which makes it high risk undertaking. The situation is further exacerbated in the mobile sector by successive generations of new technology. Mobile operators are faced with a situation where even before recouping the investments in the current infrastructure, they are forced invest in new generation networks, which makes investment in mobile infrastructure recurrent. As a result of this phenomenon, service based competition is increasingly gaining prominence in the mobile sector compared to facilities based competition as service based competition is a way in which mobile operators can recoup their investment. In order to facilitate and promote service based competition, regulators around the world are increasingly placing more emphasis on issues such as infrastructure sharing and domestic roaming.

3. BACKGROUND

- 3.1 The MCMC issued the Application Information Package No. 1 of 2002 ("AIP") pursuant to Regulation 8 of the Communications and Multimedia (Spectrum) Regulations 2000 and the Communications and Multimedia (Spectrum) (Amendment) Regulations 2001. Among of the issues that were addressed in

the AIP is the basis of evaluation of bids and assignment of spectrum. In addition, the weightage assigned to each criterion was also outlined in the paper. The AIP had identified six criteria that will be used for evaluation, namely

- 3.1.1 service rollout and coverage;
- 3.1.2 infrastructure sharing;
- 3.1.3 roaming;
- 3.1.4 financial considerations;
- 3.1.5 industry development; and
- 3.1.6 management and technical experience.

3.2 Among the criteria that was outlined in the AIP on infrastructure sharing are as follows:

- 3.2.1 sharing or allowing access to the use of airtime and network facilities with other licensees; and
- 3.2.2 maximising the use of existing network facilities including existing network capacity and capabilities, existing base station sites, backbone, radio links, etc. to enhance sharing and reduce duplication of network facilities.

3.3 In line with the requirements in the AIP, licensees who submitted bids for 3G spectrum had outlined various options on infrastructure sharing. The successful applicants, namely Telekom Malaysia Berhad ("TMB") and UMTS (M) Sdn Bhd ("UMTS") had subsequently prepared a Detail Business Plan ("DBP") which incorporates the key deliverables and timelines as per their respective tender submission. In their individual DBPs, both TMB and UMTS had proposed to provide access to MVNOs as part of their infrastructure sharing as well as industry development initiatives.

4. DEFINITION OF MVNO

4.1 There is no common and agreed definition on what constitutes an MVNO. Regulatory bodies around the world have adopted various definitions and different forms of regulatory intervention depending on the extent to which an MVNO relies on the facilities of the mobile network operator ("MNO").

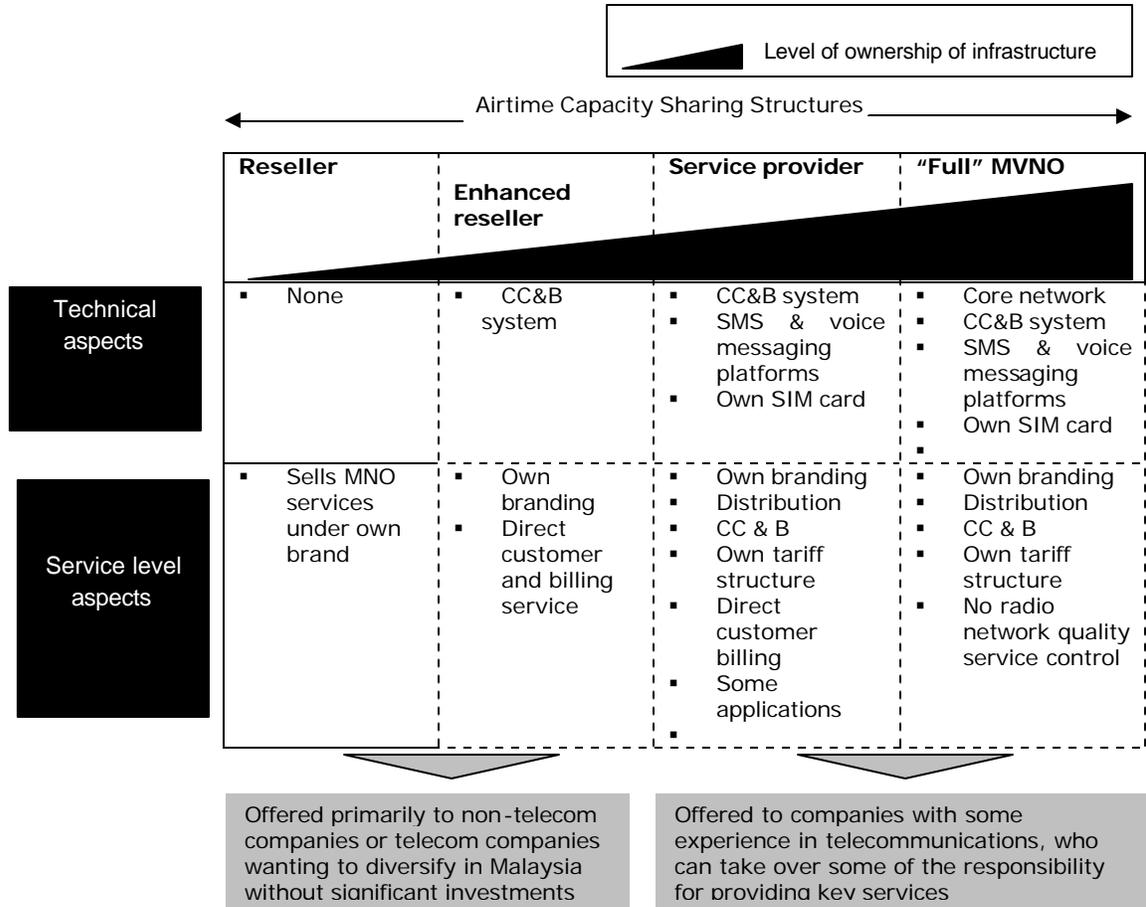
- 4.2 The MCMC would like to define an MVNO as an organisation that does not have assignment of 3G spectrum but is capable of providing public cellular services to end users by accessing radio networks of one or more 3G spectrum holders. The MCMC believes that adopting a broad definition such as this not only lowers the barriers to market entry but also provides flexibility to potential MVNOs to establish business models according to their financial capability. This in turn will increase the level of competition that will result in lower prices and innovative service offerings that will benefit end users.

5. TMB'S PROPOSAL

- 5.1 The infrastructure sharing initiatives that were outlined by TMB are as follows:
- 5.1.1 Sharing of physical infrastructure with other 3G operators and other parties including physical infrastructure sharing, site sharing and site re-use, co-ordinated network rollout and shared network rollout;
 - 5.1.2 Sharing of 3G-airtime capacity, on a wholesale basis, with a wide range of third parties, who are collectively termed MVNOs.
- 5.2 In terms of sharing 3G-airtime capacity, TMB had outlined four options, namely reseller, enhanced reseller, service provider and full MVNO. The four models are depicted in Figure 1.
- 5.3 TMB's objective is to make the MVNO business model viable option for companies with little or no prior experience in telecommunications. TMB's aim is to:
- 5.3.1 Lower the barriers to entry, so that companies from industries other than telecom can become MVNOs;
 - 5.3.2 Shorten their time to market, thus generating quicker return on investment; and
 - 5.3.3 Bridge the technology gap by supporting MVNOs in both technical and operational tasks.
- 5.4 TMB plans to provide the airtime capacity to the various MVNOs through Telekom Malaysia 3G Wholesale. This unit will act as both a provider of

airtime capacity to the MVNOs and the channel for the wholesale provision of TM Cellular's non-airtime capacity 3G services.

Figure 1: TMB's Options for MVNO



Source: TMB's detailed business plan

6. UMTS's PROPOSAL

6.1 UMTS had outlined their commitment towards infrastructure sharing which includes commitment to share wholesale capacity with MVNOs. UMTS had outlined the following principles, which will be used to assess potential wholesale partners.

6.1.1 Support the development of MVNOs who are committed to delivering niche offerings to the market place;

6.1.2 Give preference to wholesale arrangements with service providers who provide innovative services and products;

- 6.2 In addition, UMTS had stated in the DBP that it will be open to a wide range of possible MVNO arrangements with varying degree of dependency on the network operator as this is likely to encourage competition at the network service and application service levels.
- 6.3 UMTS (M) has outlined various options from the so-called thin MVNOs that require minimum infrastructure investment to thick MVNOs that requires extensive investment. Thin MVNOs can either carry out their own billing and customer support operations, while using the radio network, switches and control of Maxis through UMTS or they could operate a VMS/SMSC, GGSN and other data network platforms in order to have control of subscribers and value added services. However, a thin MVNO would still use components of Maxis' 3G networks such as radio, RNC, MSC, SGSN.
- 6.4 A thick MVNO on the other hand primarily requires access to 3G radio access network with minimum reuse of the switching, core and supporting billing and operational systems. Such MVNOs would roam from their 2/2.5G network and would have their own 3G enabled HLR/GMSC, GGSN, MSISDN and IMSI range. In addition, these MVNOs would also be able to use their existing and upgraded VAS platforms.
- 6.5 For both thick and thin MVNOs, due to the various service platforms made available and intricacies of the technical details, UMTS (M) had proposed to carry out negotiations on a case-by-case basis.
- 6.6 There are three areas in which UMTS (M) expects an MVNO to take responsibility, namely:
- 6.6.1 Customer acquisition;
 - 6.6.2 Customer management (customer service, fraud management, billing); and
 - 6.6.3 Service provisioning

7. LICENSING REQUIREMENT FOR MVNOS

- 7.1 Unlike most other countries, the licensing framework under the CMA was developed to accommodate business models such as MVNOS. Based on the definition that has been adopted, the MCMC is of the view that there could be various MVNO business models. However, for the purpose of this guideline, the MCMC has identified four prevalent business models and the characteristics of each of these business models and the corresponding licensing requirements are discussed in further detail below.
- 7.2 Prospective MVNOS should be mindful that the licensing requirements set out by the MCMC for each business model are indicative only. The actual licensing requirement can only be ascertained by the MCMC upon assessment of the applications vis-à-vis the CMA and the relevant subsidiary legislations on a case by case basis.

Full MVNO

- 7.3 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.
- 7.4 Based on our preliminary analysis, full MVNOS are likely 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.

Enhanced Service Providers

- 7.5 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. These service providers are still able to maintain some independence from MNOs as they are able to differentiate their products.
- 7.6 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.

Enhanced Reseller

- 7.7 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.
- 7.8 Enhanced resellers may 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.

Resellers

- 7.9 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 likely to require an ASP licence.

7.10 The four business models and their respective licensing requirements are outlined in Table 1.

Table 1: MVNO Differentiation by Licensing Categories

	Full MVNO	Enhanced Service Provider	Enhanced Reseller	Reseller
Network Facilities Provider	<ul style="list-style-type: none"> ▪ Switching centre ▪ Radio-communications transmitters and links 			
Network Service Provider	<ul style="list-style-type: none"> ▪ Bandwidth services ▪ Cellular mobile services ▪ Access application services 	<ul style="list-style-type: none"> ▪ Bandwidth services ▪ Cellular mobile services ▪ Access application services 	<ul style="list-style-type: none"> ▪ Bandwidth services ▪ Cellular mobile services ▪ Access application services 	
Application Service Provider	<ul style="list-style-type: none"> ▪ Public cellular services 	<ul style="list-style-type: none"> ▪ Public cellular services 	<ul style="list-style-type: none"> ▪ Public cellular services 	<ul style="list-style-type: none"> ▪ Public cellular services

8. NUMBERING

8.1 Numbering is an important requirement for MVNOs as it relates closely to provisioning of services to end users, marketing and establishing brand names. The MCMC proposes to allocate a specific block of numbers for mobile virtual network operators who wish to establish their own brand names. These numbers will likely be 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.

9. REGULATORY INTERVENTION

- 9.1 The MCMC is aware that an appropriate regulatory framework is essential for development and proliferation of MVNOs which will further enhance the level of competitiveness in the mobile sector. Towards this end, the MCMC is mindful that MVNOs are largely dependent on MNOs to enter the market and compete effectively. The key factor that ensures sustainability of MVNOs is the terms and conditions of access to the radio network as well as other incidental facilities and services required to provide services to end users. Nevertheless, at this stage, the MCMC does not intend to regulate the terms and conditions of access for MVNOs due to the lack of evidence that there is market failure. The MCMC will only intervene if it is satisfied that such intervention is necessary to ensure long term benefits to end users and growth in the industry.

10. CONTACTING MCMC

- 10.1 The MCMC may from time to time revise this guideline to ensure its relevance. Hence, if there is any feedback that licensees would like to provide in relation to this guideline, kindly provide it to the address stated below. In addition, further information pertaining to licensing aspects of MVNOs can also be obtained by writing to the following address:-

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