Mobile virtual network operator

A mobile virtual network operator (MVNO) is a company that provides mobile phone services but does not have its own licensed frequency allocation of radio spectrum, nor does it necessarily have all of the infrastructure required to provide mobile telephone service. A company that does have frequency allocation(s) and all the required infrastructure to run an independent mobile network is known simply as a mobile network operator (MNO). MVNOs are roughly equivalent to the "switchless resellers" of the traditional landline telephone market. An MNO that does not have a frequency spectrum allocation in a particular geographical region may operate as an MVNO in that region.

An MVNO's roles and relationship to the MNO vary by market, country and the individual situations of the MNO and MVNO. In general, an MVNO is an entity or company that works independently of the mobile network operator and can set its own pricing structures, subject to the rates agreed with the MNO. Usually, the MVNO does not own any GSM, CDMA or other core mobile network related infrastructure, such as mobile switching centers (MSCs), or a radio access network. Some may own their own home location register, or HLR, which allows more flexibility and ownership of the subscriber's mobile phone number (MSISDN)—in this case, the MVNO appears as a roaming partner to other networks abroad, and as a network within its own region. Some MVNOs run their own billing and customer care solutions known as business support systems (BSS). Many use an MVNE.

There is a distinction between MVNOs and service providers, who purchase wholesale mobile minutes and resell to end-users. Normally they do not have their own SIM cards and the services provided by service providers depend on the services of the hosting MNOs or MVNOs.

Background and history

The emergence of the MVNO model in a market is often a result of one of two factors. Regulatory intervention designed to lower the barriers for market entry and ultimately increase competition, or a strategic decision by an MNO looking to extend its existing operations and target niche or underserved segments through a second or perhaps multiple brands.

For some of the earlier markets that embraced the MVNO model, such as in the Scandinavia region, the regulatory authority sought to introduce the MVNO/wholesale model to drive competition into a market that was considered to involve significant market power which existed for early entrant MNO's in those countries. The regulatory perception was that the MVNO model would be a time efficient and cost effective route for telecoms companies to enter the market and therefore bring increased competition for the benefit of the consumer.

The efficiency is obtained by the nature of the MVNO business model, in that, an MVNO doesn’t incur the significant capital expenditure on spectrum and infrastructure that an MNO does, nor does it have the time consuming task of rolling out extensive radio infrastructure. In many of the early markets the regulator forced Host Network Operators (HNO's) to open their network to, what was for them, a potential competitor. The situation created was one of a reluctant HNO which felt that it was being forced into a commercial relationship that would eventually have a negative impact on its revenues. Needless to say, this presented a challenging operating environment for the MVNO, most notably with regard to negotiating the best wholesale deal possible.

Conversely and more recently many mobile network operators believe that there is merit in operating a wholesale MVNO business unit, to complement their retail model. And have therefore either openly embraced potential MVNO partners or indeed endeavored to launch their own branded MVNOs, presenting a far more favorable environment for a potential MVNO.

The first commercially successful MVNO in the UK was Virgin Mobile UK, launched in the United Kingdom in 1999 and now has over 4 million customers in the UK. Virgin replicated its UK success through its US operation Virgin Mobile USA, which was eventually acquired by Sprint Nextel for a total equity value of approximately
USD$483 million[^4]. However ventures in Australia have not been so successful, and failed in Singapore, albeit with a different strategy.

Initially, Virgin ran using a service provider model—essentially reselling capacity on T-Mobile.

The first MVNO was created by Tele2 in Denmark, and subsequently rolled out in several European markets. This model formed the basis between the co-operation between Tele2 in Sweden and Telia, created when Telia failed to obtain a 3G license in their home market.

**MVNOs worldwide**

As of February 2009, there are over 400 active MVNOs operated by over 360 companies. Close to 100 companies are planning to operate within the sector and there are 72 brands run by MNOs pretending to be MVNOs[^5]. Countries including Germany, Netherlands, France, Denmark, United Kingdom, Finland, Belgium, Portugal, Australia, & United States have the most MVNOs. In these countries the MVNO marketplace is stabilizing and there are some well-known MVNO successes. Other countries, such as Russia, Spain, Italy, Croatia, Baltics, India, Chile, Jordan, Israel, Macedonia[^6], Ireland, Austria, and South Korea[^7] are just beginning to launch MVNO business models[^8].

MVNOs target both the consumer and enterprise markets. Examples of a non-consumer MVNO being wireless maingate and white, Machine-to-Machine (M2M) data based MVNOs. However the majority of MVNOs are consumer-focused and most have a focus on price as their unique selling point. It is now widely thought that the future development of MVNOs as an industry is within enterprise market developments and M2M markets.

**Terminology**

The industry is going through stages characterized by alphabet soup nomenclature, including MVNO, roaming virtual networks mobile operators (rMVNO), and mobile virtual network enabler (MVNE). Most industry observers believe that over time, consolidation will take place on the market, while others will go out of business (examples are Disney Mobile and Helio in the USA and easyMobile in Europe).

One specific sector of MVNO operations focuses on international, rMVNOs. These are distinct from domestic MVNO agreements and are intended to provide transparency of international tariffs.

According to Pyramid Research, there are three main categories of MVNEs, according to their MVNO solutions:

**Aggregator MVNEs**

these offer consulting and integration services and have bundled all of the back-office network components through alliances. These promote their ability to quickly provide order-to-cash solutions to MVNOs. Companies include Ztar and TMNG.

**Aggregator MVNEs with their own platforms**

this includes aggregators which have developed one or more back-office solutions internally, and have complemented them with partnerships to provide end-to-end enablement services. Companies include aql, Martin Dawes Systems, Teleena, ASPIDER Solutions, Effortel, Qualution, 6GMOBILE, Elephant Talk, and Baraka Telecom in Asia.

**Specialised enablers**

these offer only parts of the back-office network such as messaging platforms, data platforms and billing solutions. They are not solely focused on the MVNO market. Companies include Teleena, ASPIDER Solutions, Elephant Talk, txtNation, Tyntec, 6GMOBILE, LogicStar, Convergys, and Baraka Telecom in Asia.

The voice-centric, operationally light MVNOs of today have generally worked with an aggregator MVNE that managed the limited back-end operations on behalf of the MVNO. The new breed high-end, strong brand MVNO is transforming the dynamics of the MVNE market. Besides leveraging their own existing assets, they choose to own...
more of their platforms, particularly their logistics, distribution and customer care systems. They still work with MVNEs, but they tend to opt for specialised ones with best-of-breed solutions and a strong reputation.

Exploiting the wireless IP networks competing infrastructure bandwidth with low traffic due to the lack of Mobile Driven Content, such as GPRS, EVDO, along with specific domain knowledge software applications with specific content, other Global Service or specialized application based MVNO are also growing.

These companies are pushing their own business model as content driven MVNO. They usually host their services in one location, and provide access to their content in different countries via specialized Mobiles and existing IP coverage.

**MVNO classification**

**Business MVNOs**

like BeyondMobile and Abica provide bespoke services to businesses.

**Discount MVNOs**

provide cut-price call rates to market segments.

**Lifestyle MVNOs**

like Helio focus on specific niche market demographics.

**Advertising-funded MVNOs**

like Blyk or MOSH Mobile build revenues from advertising to give a set amount of free voice, text and content to their subscribers.

**Ethnic MVNOs**

like Lebara and Globalcell Mobile who target ethnic communities by providing inexpensive calls to their home country.

**Mobile operators and MVNOs**

There are three primary motivations for mobile operators to allow MVNOs on their networks. These are generally:

**Segmentation-driven strategies**

mobile operators often find it difficult to succeed in all customer segments. MVNOs are a way to implement a more specific marketing mix, whether alone or with partners and they can help attack specific, targeted segments.

**Network utilisation-driven strategies**

Many mobile operators have capacity, product and segment needs—especially in new areas like 3G. An MVNO strategy can generate economies of scale for better network utilisation.

**Product-driven strategies**

MVNOs can help mobile operators target customers with specialised service requirements and get to customer niches that mobile operators cannot get to.

MVNO models mean lower operational costs for mobile operators (billing, sales, customer service, marketing), help fight churn, grow average revenue per user by providing new applications and tariff plans and also can help with difficult issues like how to deal with fixed-mobile convergence by allowing MVNOs to try out more experimental projects and applications. The opportunity for mobile operators to take advantage of MVNOs generally outweighs the competitive threat.
Understanding the MVNO value chain

Mobile network operator (MNO)

The traditional MNO is characterised by having their own mobile licence, their own mobile infrastructure and direct customer relationship to the end user. The MNO can handle Network Routing and will usually have roaming deals with foreign MNOs. The MNO can produce and distribute for example voice-minutes, SMS and MMS messaging and data traffic themselves. The MNO can typically handle customer service, invoicing and collect consumption data and handle handset management themselves. Additionally the MNO will usually handle marketing and sales to end-users themselves.

Mobile network enabler (MNE)

An MNE is characterised by having their own mobile licence and own mobile infrastructure, but the MNE has - unlike the MNO - no direct customer relationship with the end user. It is therefore only an MNO that can establish themselves as an MNE. The MNE is capable of handling Network Routing themselves and the MNE will typically have roaming deals with foreign MNOs. The MNE is able to produce and distribute for example voice minutes, SMS and MMS messages and data traffic. The MNE will typically be able to handle customer relationship, customer billing and collection of consumption data and mobile handset management. The MNE will not handle marketing and sales to end-users, this is a task for the MNE's wholesale customers. The MNE handles the technical side of the business and often also handles areas like customer service and legal assistance for mobile providers without their own network.

Mobile virtual network enabler (MVNE)

MVNEs are characterised by neither having a mobile licence nor mobile infrastructure or any direct customer relationship with the end-users. The MVNE is capable of handling Network Routing and the MVNE has typically entered into roaming deals with foreign MNOs. The MVNE is not capable of producing and distributing for example voice minutes and data traffic, but the MVNE will typically be able to handle producing SMS and MMS messages. A typical MVNE will handle customer service, customer billing, collection of consumption data and mobile handset management. Additionally the MVNE will not handle marketing and sales to end-users, this is a task for the MVNE's wholesale customers. The MVNE functions as a middleman between the MNO and the mobile providers without their own networks. The MVNE handles the technical side and often also tasks like customer service and legal assistance for mobile providers without their own network.

Mobile virtual network operator (MVNO)

An MVNO is characterised by neither having their own mobile licence nor own mobile infrastructure, but the MVNO has the direct customer relationship with the end user. The MVNO is able to handle Network Routing themselves and will typically have entered into roaming deals with foreign MNOs. The MVNO is often able to produce and distribute for example voice minutes and data traffic, typically by tagging onto their existing fixed line operation, and the MVNO will typically be able to handle producing SMS and MMS messages. A typical MVNO will be able to handle customer service, customer billing and collection of consumption data and handset management. Furthermore the MVNO will usually handle marketing and sales to end-users themselves.

Mobile shared spectrum enabler (MSSE)

The MSSE has no mobile infrastructure of its own, but is a technology provider that uses innovative hardware and software to enable MVNOs to create their own actual mini-networks, while preserving and enhancing the relationship between MVNO and MNO. Using its agreement with the MNO, and operating within the MNO's spectrum license, the MSSE helps the MVNO to deploy its own network of low-power base-stations into areas the MNO could not justify, using Pico- and Femto-cell technologies. There is no impact on the MNO's mainstream network and it can, if it chooses, extend the reach of its network at no cost, while the MVNO can improve its profitability by offering specialist and niche mobile solutions.
Service provider (SP)

An SP has neither a mobile licence nor own mobile infrastructure, but the SP has the direct customer relationship with the end user. An SP is not able to handle Network Routing themselves and a SP will not enter into roaming deals with foreign MNOs. The SP is not able to produce and distribute for example voice minutes and data traffic and cannot produce SMS or MMS messages themselves. The SP will typically handle customer relationship, customer billing consumption data and handset management themselves. Additionally, the SP will typically handle their own marketing and sales to end-users.

Branded reseller (BR)

A BR has neither a mobile licence nor own mobile infrastructure, but has the direct customer relationship to end-users. The BR cannot handle Network Routing themselves and the BR will not enter into roaming deals with foreign MNOs. The BR cannot produce and distribute for example voice minutes and data traffic themselves and are not able to produce SMS or MMS messages. A typical BR will not handle customer service, customer billing or collection of consumption data and handset management themselves. The BR will primarily concentrate their activities around marketing and sales to end-users. The BRs' positive contribution to the value chain is (naturally) their “brand”, but their distribution power will also be a central asset for many Branded Resellers.

Legislation

Presently many companies and regulatory bodies are strongly in favour of MVNOs. For example, in 2003, the European Commission issued a recommendation to national telecom regulators (NRAs) to examine the competitiveness of the market for wholesale access and call origination on public mobile telephone networks. The study resulted in new legislation from NRAs in countries like Ireland and France forcing operators to open up their network to MVNOs. In the Middle East, Jordan’s TRA has issued its first MVNO regulations in 2008 facilitating the entrance of the first MVNO in the region.

References

[8] Source: Takashi Mobile

• Understanding MVNOs (http://www.understandingmvno.com)
• ZyAir Wireless (http://www.zyairwireless.com)
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