



Hewlett Packard
Enterprise

Business white paper

Explore new market potential

Realize MVNO strategies



MVNOs have gone through many stages since the '90s, and proliferation in the mid-2000s—with players increasing. MNO's attitudes have also radically changed. They initially fought against MVNOs and legislation but have learned to accept their existence—now eagerly seeking them as partners and developing aggressive wholesale strategies.

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Untapped market niches

The telecommunications industry has dramatically changed over the last decade, and mobile virtual network operators (MVNOs) are taking advantage of this to earn a bigger share of the global telecom market. This has attracted an increasing number of companies that have never been involved in offering telecom products and services, and see the MVNO business model as a way to fulfill their long-term strategy, and maximize profits by using their own brand-awareness and customer loyalty.

Informa Telecoms & Media¹ is forecasting that the MVNO market will reach 270 million subscriptions by the end of 2018. Despite this, the global MVNO market is far from reaching maturity because it is currently connecting to less than 3 percent of total global subscriptions.

Although MVNO opportunities are still expanding, creating a sustainable MVNO business is far from easy, and many have not been able to do so. This paper shares some of the experiences by Hewlett Packard Enterprise (HPE) in helping companies—in low- and high-growth regions—go to market with the right MVNO strategy and business model.

Tremendous growth opportunity despite challenges

MVNOs are expected to grow faster than mobile network operators (MNOs); this growth will primarily be driven by developing countries, as European and North American MVNO markets are reaching a plateau. New services such as mobile payments and machine-to-machine (M2M) will help drive this growth. But the most important factor is the changing regulatory environments supporting MVNOs. It's expected that critical markets will open their doors and create more supportive regulation for MVNOs, increasing competition and consumer welfare in the telecom industry.

Decreasing average revenue per user (ARPU), low customer satisfaction, and increasing capital expenditures (CAPEX) from MNOs are also motivating MVNO's success. However, MVNOs are still expected to represent only a small fraction of global connections in the next five years, as they face high failure rates due to increasing competition and lack of operational expertise.

Successful MVNOs do not usually have a large pool of resources to use or see any savings from economies-of-scale; instead they operate efficiently and don't compete directly with MNOs. Over the years, they have moved away from directly competing against MNOs by offering new services to existing MNO customers and targeting new and specific niche markets like migrant workers, veterans, businesses, and younger users.

Recent MVNO developments are expected to increase competition in specific telecoms markets. This will let big retailers and utilities companies use their existing Business and Operational Support Systems (B/OSS) to reap higher revenues by adopting MVNO strategies. Users are also expected to benefit from increasing competition as successful MVNO markets have decreased prices of specific services and improved customer satisfaction. Moreover, even MNOs are benefiting from MVNO progress by obtaining wholesale deals, increasing rate of network use, and creating their own MVNOs by launching sub-brands.

¹ "The multifaceted world of MVNOs: Growth and challenges ahead," Dario Talmesio, Principal Analyst, Informa Telecoms & Media, Nov. 2013, <http://www.informatandm.com/white-paper-download-the-multifaceted-world-of-mvnos-growth-and-challenges-ahead/>

MVNO business models

An MVNO strategy consists of defining a target market where the future MVNO is comfortable to play in the communications service space. It has well-defined target customers—ones that prefer the MVNO service option among current ones or as an additional service to its communications service provider. It also includes what assets are really needed and what can be reused or upgraded—resources, systems, people, and agreements, among others—to meet the model and continue its growth in use cases and customers.

So, when the strategy is in place, the next common step is to invest in the infrastructure or necessary systems to meet the strategy timeframe.

An MVNO deployment is defined by the systems responsible to enable integrations (such as mobile virtual network enabler [MVNE]) with a mobile operator's (such as the MNO) core network and systems within their radio network that enable access to the cellular spectrum. This can be expressed by the simplified syntax $MVNO = MVNE + MNO$.

MVNE systems permit the virtual operator to offer, provide, control, and maintain the service with as much flexibility as these systems allow. Nevertheless, an MVNE acquisition strategy is not only driven by the MVNO, but also by the MNO capacity. This means the MNO's network technology will define integration to the MVNE. And the MVNE can support multiple network technologies in order to integrate with multiple MNOs or non-Telco networks, while staying aligned with the defined business model. It's here where HPE solutions for MVNOs apply—by providing a comprehensive way to manage users, network resources, and services.

In general, a target MVNO business model helps define the scope of the MVNE set of systems to be deployed. There are three major types:

- **Branded reseller**—This approach is used when a short time-to-market strategy is an important driver for the MVNO provider. With this type of MVNO, the MVNE is oriented to the systems that support the customer relationship, and the commercial offer is integrated with MNO's provisioning systems in order to configure MNO's systems to support it. From a billing management systems perspective, the platforms involved are mostly oriented to interpret usage traffic from the MNO and manage the service-level agreement between the MVNO and MNO.
- **“Light” MVNO**—Reduced MNO intervention in business decisions triggers light and full MVNO's implementations. Paradoxically, this need implies an increase in MNO network element (NE) integrations—while the virtual service provider takes control of its service—so a complex service-level agreement ensures the win-back relationship between stakeholders.
- **“Full” MVNO**—This allows MVNOs to have full control of the mobile service with less dependency on an MNO. The goal of having elements that end mobile services, such as Internet access and telephony-added services, is part of the strategy to take control of the service experience with a 360° view by including core network and business elements. The major drivers push to deploy core network elements, such as managing international roaming agreements with international carriers—treated as other MNOs—within the MVNO solution. Also, there is the desire to provide Internet access through Internet carrier partnerships, and apply flexible access policies aligned to the broader MVNO service offer. The full MVNO approach doesn't necessarily need to be a long-term goal; with IP-based convergent network technology, the vision of acquiring core network elements can be reached faster than expected. Ideally, this approach is oriented to a flexible and convergent architecture to integrate one or more MNO's radio access network (RAN) within centralized core elements.

Current landscape

Business models are incredibly different across the range of MVNO markets, which are made up of a myriad of large, medium, small, and tiny companies with disparate identities and business

models. Today, there are close to 1000 MVNOs, branded resellers, and sub-brands with business models varying from brand licensing, brand resellers, light MVNOs, full MVNOs, and operator-owned second brands acting as virtual operators.

Globally, MNOs have been leveraging “sub-brands” at home and abroad for some time. This allows them to go into places where their tier-one brand may not be able to go, such as a down market. It also enables MNOs to address particular market segments and capitalize on areas that may not be a part of their larger brand strategy, yet create a more personalized and enhanced mobile customer experience. Sub-brands can also enable MNOs to enter new regions, better contend with regulations, and address niche market segments. MNOs can go even further by becoming an MVNE, enabling other MVNOs to access their network for a piece of the pie.

North America is home to a number of MVNOs. Groupe Speciale Mobile Association (GSMA) research² indicates that MVNOs remain most prevalent in mature markets where penetration—based on connections—has surpassed 100 percent. Not counting MNO sub-brands, Europe is home to more than two-thirds of global MVNOs, followed by the Americas and Asia. By contrast, the MVNO sector remains in its infancy in African markets, with just a handful of MVNOs across the region.

GSMA intelligence³ identifies eight different categories—discount, telecom, media and entertainment, migrant, retail, business, roaming, and machine-to-machine (M2M). In 2012 to 2013, discount and telecom MVNOs have been the most prominent types of operations—accounting for 46 percent of the global MVNO market. Nineteen percent are owned by companies that come from adjacent industries—such as retailers, banks, TV, or media organizations. This leaves 35 percent of the market to specialized providers focused on segments such as business, migrant, M2M, and roamers.

The most common category in North America has been discount MVNOs that focus on offering low-cost services, by enabling larger operators and groups to target low-value consumer segments, without diluting their core brand or pricing strategies. For example, Sprint currently hosts about 27 of these discount MVNOs—up from 18 in 2012; AT&T has 16—up from 13; and T-Mobile and Verizon each have 6. Most of these discount MVNOs are prepaid-focused.

MVNO connections have been growing strongly in the U.S. market for the last two to three years, generating more than a quarter of AT&T’s net and almost half of those at Sprint. However, some may argue that the MVNO momentum may have stalled a bit. This factor will likely reflect an increased focus by the U.S. market on LTE and smartphone adoption—with subsidized devices typically available only on contract tariffs, mirroring the trend seen in other advanced markets such as South Korea. But, the exception to this trend has been T-Mobile, where MVNOs have continued to be an important source of connection growth, generating almost one-third of its net additions in the last three quarters of 2013—helped by the acquisition of MetroPCS.

TracFone is by far the largest MVNO in the U.S. market and offers wireless service through several brands including StraightTalk, Telcel America, Net10, and SafeLink. MVNOs have had relatively less impact in the Canadian market where Virgin Mobile was one of the largest and most successful before being acquired by Bell Canada.

For Latin America, the MVNO market is still at its infancy, but there is a significant potential for growth. Typically, Latin American MVNOs have been the domain of existing telecoms companies keen to offer converged fixed/mobile bundles. The most notable examples include Internet service provider (ISP) Maxcom and Cable MSO Megacable in Mexico, ISPs UNE and ETB in Colombia, and Telsur/GTD in Chile.

The first non-Telco MVNOs appeared in the second half of 2010. Initially, Colombian TV group RCN launched Uff—an MVNO offering cheap long-distance calls to fixed and mobile numbers in the main countries where Colombian expats live, and where a sizable MVNO already exists. Then, in mid-2011, the region saw the first retailer launch, when Costa Rican electronics and furniture retailers Grupo Monge and Casa Blanca introduced Fullmovil.

² “The Mobile Economy 2014,” GSMA Intelligence, <http://www.gsmamobileeconomy.com/>

³ *ibid.*

The Latin American MVNO market started picking up in the second half of 2011, and the strongest activity was in Colombia and Chile. Given the pricing environments and churn trends, Brazil, Mexico, and Colombia, and to a lesser extent Argentina, would appear well-suited for additional price competition.

The road to MVNO deployment

An MVNE solution for MVNOs must be flexible and designed in a way that the MVNOs can determine the level of control for their target voice and data offerings, along with tariffs, promotions, and overall business goals and strategies—all independent of the MNO’s business approaches and goals.

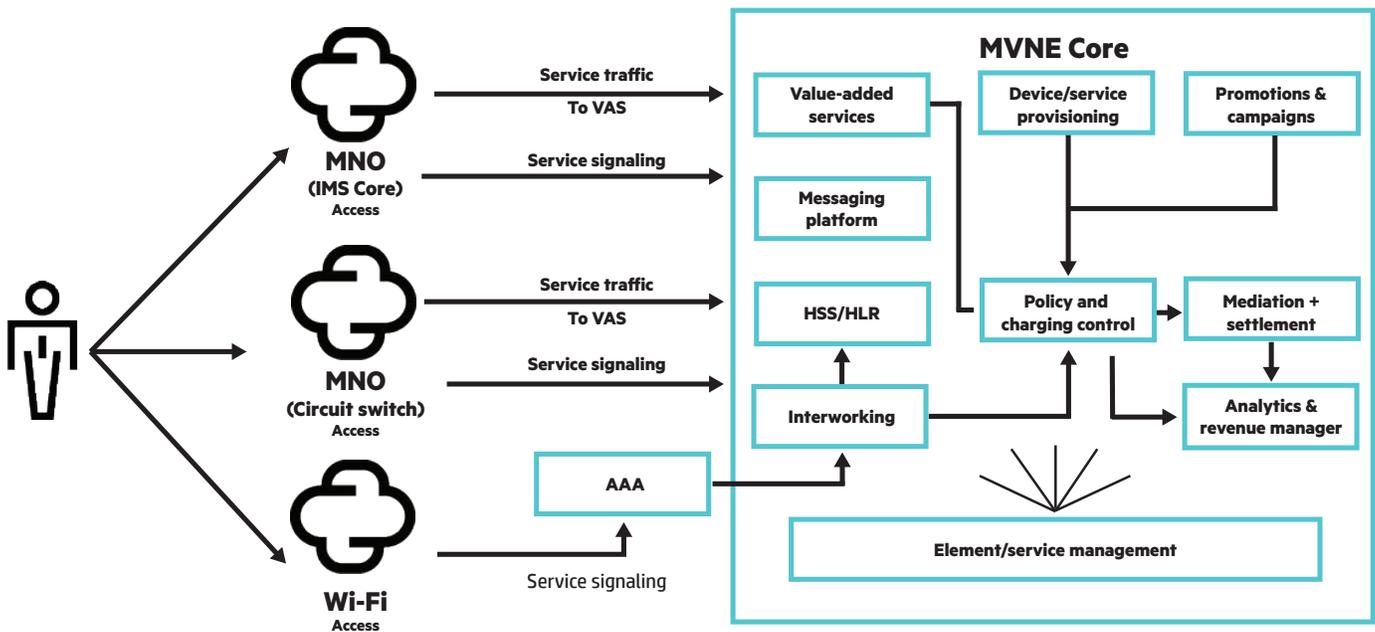


Figure 1: Conceptual MVNE solution architecture

Figure 1 illustrates a target architecture for light MVNO’s models and the main functional elements required for MVNE systems.

An MVNE solution is an enabler for virtual service providers to implement full MVNO deployment. MVNE infrastructure guides the implementation of service-oriented architecture and enables the provider to grow and integrate with MNOs across different network technologies as packet switch and packet core, 2G, 3G, and 4G/LTE.

The methodology needs to be based on the definition of the MVNE system’s needs—from a business-oriented architecture, based on use cases definition to determine what is needed since the initial deployment and what will be integrated on further stages. This methodology consists of three major steps:

- **Take control of the service**—In this step, the virtual service provider manages customer devices and the way devices are registered into the MNO network—so authorized services reside in the MVNE and are controlled by the MVNO. Having control of service authorization at a registration level also enables uniquely defined and controlled plans with cross promotions to non-Telco services. Depending on the service penetration strategy, the local number portability (LNP) can be relevant at this stage. Nevertheless, the MVNO strategy usually targets prepaid consumers who prefer to “test first.”

- Showcase the offer’s value**—Once the MVNO is established and consumers get used to the mobile service, the next step is to get closer to them by offering a new catalog of products and services. These can be rapidly subscribed to, used, and billed jointly with the regular provider offer. Building familiarity with customers also triggers the need for advertising systems that can deliver personalized promotions and discounts, meaningful commercial offers, and real-time alerts and notifications. When the new offerings take off, MVNOs can start planning an expansion strategy. In most cases, adding new MNOs becomes the best way to expand service footprint, enabling the MVNO to reach new coverage areas and reduce risk of depending only on a single MNO.
- Derive insights from analyzing customer behavior**—Knowledge of each customer’s consumption behavior individually helps MVNOs develop relevant new mobile offers. By adding advanced analytics capabilities, better customer insights can be leveraged to build powerful business intelligence-driven decisions. Continuous data analysis should be considered an integrated business function that enables a real-time, realistic picture of customers and the business. It helps determine what service action can be taken to enhance customer experience. Considering the fact that non-Telco MVNOs may have additional insights into customer habits from other lines of businesses, such as retail and banks, a more holistic view of a customer profile can be developed to optimize and enrich customer experience even further, based on a customer’s overall taste, preferences, and likes.

Our approach

Definition of a deployment methodology becomes critical for the new mobile virtual operator. This methodology is based on features that help answer key questions: How will customers get access to the service? What should be controlled so the new mobile service is aligned with the overall business strategy? And how can MNO agreements be monitored and controlled?

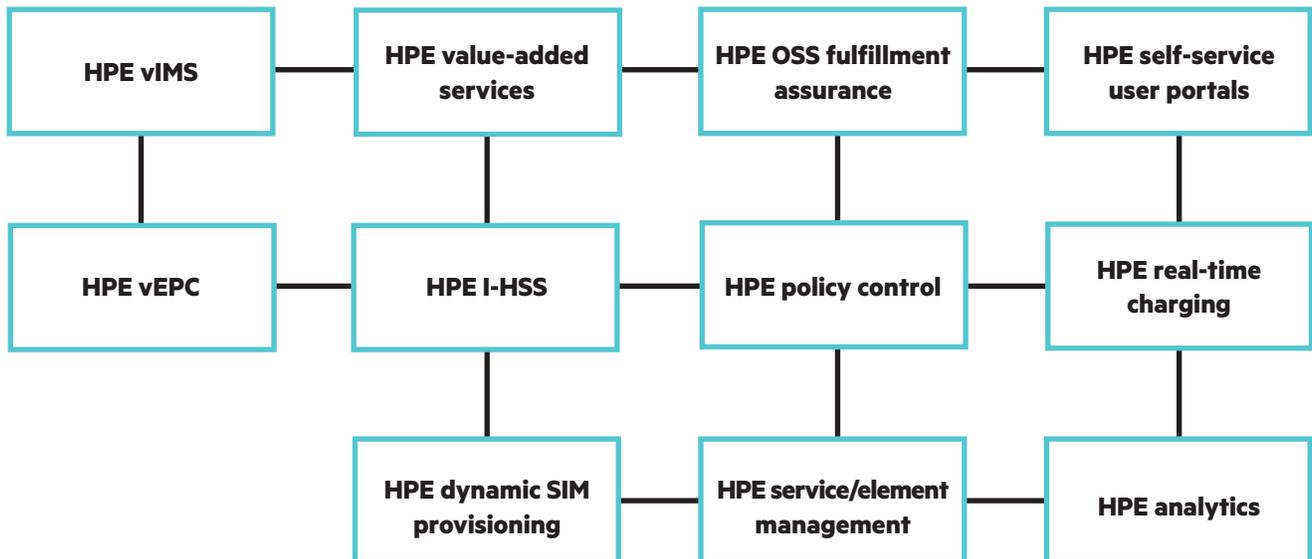


Figure 2: HPE integrated MVNO architecture

Our MVNE blueprint shows how to accomplish this with a selected architecture and major MVNO requirements mapped into functional elements. Figure 3 illustrates the HPE MVNE blueprint; platforms are framed in functional areas.

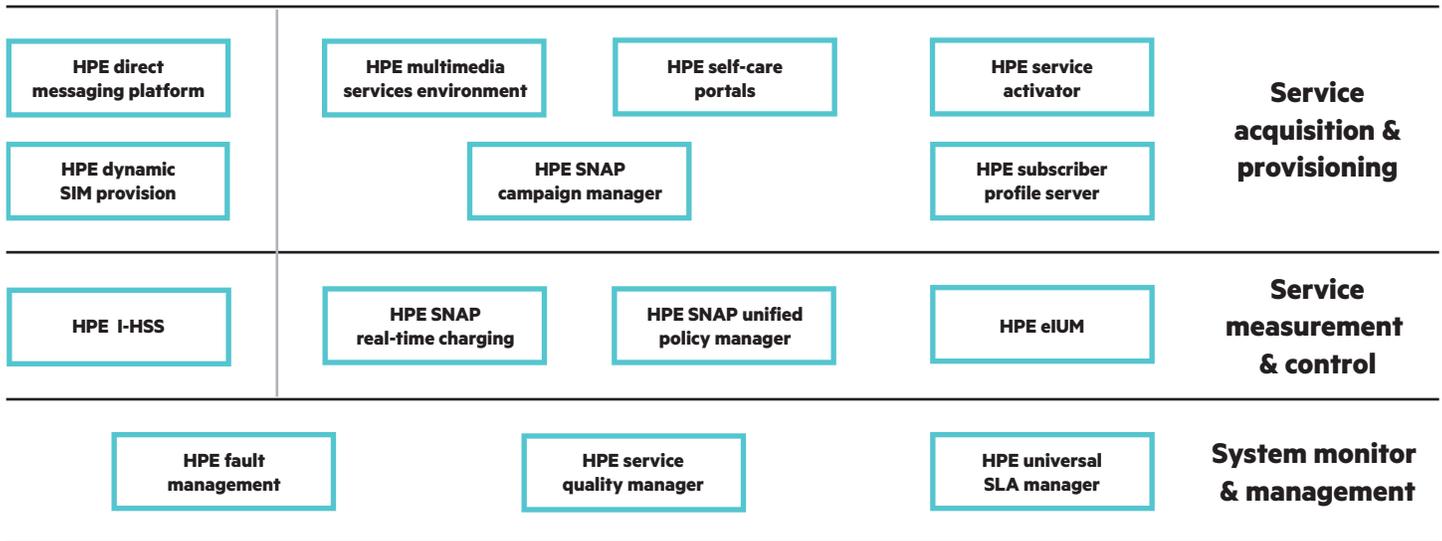


Figure 3: MVNO deployment blueprint

This blueprint is structured around three main areas—service acquisition, service control, and system monitoring processes.

- Service acquisition & provisioning**—Main features in this area are related to the MVNE’s ability to provide easy access to the virtual provider offer/portfolio, so customers can select and acquire products in a simple, seamless way. This process requires the following main features:

 - Device preprovision with HPE Dynamic SIM Provisioning
 - Self-service interface with HPE self-service Portal
 - Subscriber information centralized with HPE Profile Manager
 - MVNE systems provisioning with HPE Service Activator
 - Subscribers behavior and service consumption measured and analyzed with HPE Subscriber Profile Server (SPS)
- Service measurement & control**—Business rules are translated into a technical configuration to control services, registration and consumption, take action, and use. This is where virtual service use cases are configured. And also defining the required capacity of integration with selected and upcoming MNOs. Key integration areas are:

 - Subscriber network registration and mobile services authorization management with HPE I-HSS
 - Real-time service policy and charging control (PCC) with HPE SNAP
 - Billing settlement controlled with MNOs along with CDR/xDR treatment using HPE eIUM
- System monitoring & management**—The service operation is a joint task between the MNO and MVNO. Even though the customer care system resides in the MVNO, these systems need to be monitored in all network elements. This enables reaction and anticipation of system faults, to act and configure the MVNE systems or advise MNOs management of appropriate SLAs.

 - Monitor the service in MVNE network elements through HPE Service Quality Manager
 - Control and centralize system alarms of network and business core elements with HPE TeMIP
 - Manage MNOs service SLAs with HPE Dynamic Service Level Agreement Manager

Attractive offers are the key

MVNOs must find ways to offer attractive data offers—to the right niche, at the right price. In traditional MVNO markets, such as Europe, North America, and Asia, MVNOs have historically targeted the prepaid market with a low-cost proposition, and then tried to attract more affluent customers. International experience shows that the wholesale business can bring MNOs significantly higher EBITDA margins than retail by reducing SAC while only slightly lowering ARPU. Typically, a market with comparatively high or very high prices is more likely to have room for MVNO-led price arbitration. Markets with higher levels of churn also might offer better opportunities for MVNOs because users are more inclined to switch providers.

About the authors

Alejandro Jimenez Pinzon

Alejandro Pinzon is a presales architect with HPE Actionable Customer Intelligence practice, responsible for real-time BSS solutions under Communications & Media Solutions (CMS) unit. He has wide telecommunications industry experience in leading core network solutions for 3GPP GPRS and LTE/IMS standards and business core solutions in real-time OSS/BSS systems such as Mediation, Policy, and Charging.

Khondoker Huq

Khondoker Huq is a solutions leader for HPE Communications & Media Solutions (CMS). He is responsible for promoting BSS/OSS solutions and developing go-to-market strategy for the Americas region. He has almost two decades of extensive BSS/OSS experience in the Communications, Media & Entertainment (CME) industry. His current focus areas are, but not limited to, 4G/LTE, Wi-Fi, Cable, OTT, NFV, M2M, IoT, MVNO, and Big Data & Analytics.



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