

Integrated Messaging Platforms:

Evolving Networks and Business Models
to Meet New Challenges



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Introduction

Catalyst

The mobile messaging infrastructure market has changed significantly in recent years, partly in response to the increased pressure on mobile operators to reduce their capital and operational expenditure, and partly in response to the changing composition of mobile messaging.

Telcos are experiencing slowing growth or even declines in their revenue from traditional messaging and voice services, at a time when they are also required to invest heavily in spectrum, networks, and IT systems in order to develop and deploy new revenue-generating services. In particular, the increased penetration of over-the-top (OTT) communications applications has resulted in the slowing growth of person-to-person (P2P) SMS traffic and revenue in a number of markets. However, P2P SMS usage remains at a high enough level that, even in developed markets, telcos are as yet in no position to retire the service.

Application-to-person (A2P) SMS traffic and revenue is also growing as more enterprises become aware of the benefits of using SMS to communicate with their customers, employees, and the general public. Also, in emerging markets, where the penetration of smartphones and mobile broadband is lower, mobile users still typically access information, services, and content via SMS and Unstructured Supplementary Service Data (USSD).

There is a clear need for telcos to dispense with the traditional silo approach for the provision of messaging services. Instead, telcos should evaluate whether they should deploy a modular messaging platform, or an integrated messaging platform, which is able to integrate the delivery of multiple types of messaging, comprising both the traditional services (P2P/A2P SMS, MMS, USSD, voicemail) and the emerging IP communications services, and so be able to manage these services from a single central point. The integrated messaging platform would also better enable the telco to develop and launch new revenue-generating VAS more quickly, with the aim of reducing customer churn. This is as opposed to the legacy approach, whereby each messaging service is delivered via its own dedicated platform, and service creation is time-consuming, complex, proprietary to the operator ... and therefore expensive.

In order to help telcos achieve their objectives of reducing total cost of ownership (TCO), launching new VAS, and reducing churn (as a result of OTT app usage), vendors are evolving their messaging platforms from hardware to software, embracing network functions virtualization (NFV) and cloud, and revamping their business models.

Key findings



OTT communications apps have had a significant impact on mobile operators' SMS traffic and revenue in a number of markets. Initially mobile subscribers used OTT apps because they enabled free in-app messaging (and, more recently, voice calls). The risk for telcos is that, as the OTT apps add more communications, content, and commerce features and become more engaging, mobile subscribers will switch their communications behavior completely to the app, resulting in churn from telco services.



A2P SMS traffic and revenues are growing, as enterprises become more aware of the potency of using SMS as a communications channel. Telcos are increasingly in a position where they need to be able to manage A2P SMS traffic flow over their messaging infrastructure better.



The commoditization of SMS has meant that telcos did not, until the explosive growth of OTT communications, realize the significance of prioritizing investment in their messaging services. Much of telcos' capital expenditure has targeted network modernization via spectrum acquisition, LTE network rollouts, and IT systems upgrades or deployments.



Downwards pressure on telcos' mobile services revenue affects all suppliers: Messaging vendors have had to evolve their platforms and business models to provide telcos with a lower-cost, more flexible integrated messaging platform that supports legacy messaging and growth in A2P SMS, embraces IP communications, and enables new types of value-added services (VAS).



Vendors are enabling telcos to deploy integrated messaging platforms using Network Functions Virtualization (NFV), and cloud, both of which will help telcos to reduce TCO.



In addition, vendors are introducing new business models, meaning telcos will be able to manage their costs better by, for example, allowing more efficient capacity management or by allowing telcos to only pay for the capacity that they actually use.

Key messaging trends: Telcos feel the strain

OTT communications apps put P2P SMS in decline

The rise of OTT communications apps has had a significant impact on mobile operators' P2P SMS traffic and revenue in a number of markets, specifically those markets where there is a high penetration of smartphones and mobile broadband, and where mobile operators did not move quickly enough to deploy mitigating strategies. For example, in countries such as Spain and the Netherlands in Europe, and in South Korea in Asia, mobile operators typically charged high per-message prices for SMS and were slow to offer affordably priced bundles of unlimited SMS. Subsequently, P2P SMS traffic declined considerably in these countries as large numbers of mobile users adopted WhatsApp and Kakao Talk, respectively.

SMS traffic in Spain declined from 11.8 billion messages in 2008 – the year prior to the release of WhatsApp in 2009 – to 4.6 billion messages in 2013 while, in the Netherlands, KPN Mobile saw its SMS traffic fall from 1.8 billion in 2010, to 560 million in 2013 (see Figures 1 and 2). Ovum estimates that mobile operators lost up to \$40bn in SMS revenues globally to OTT communications apps in 2014.

Figure 1: Spain, SMS traffic, 2008 - 13

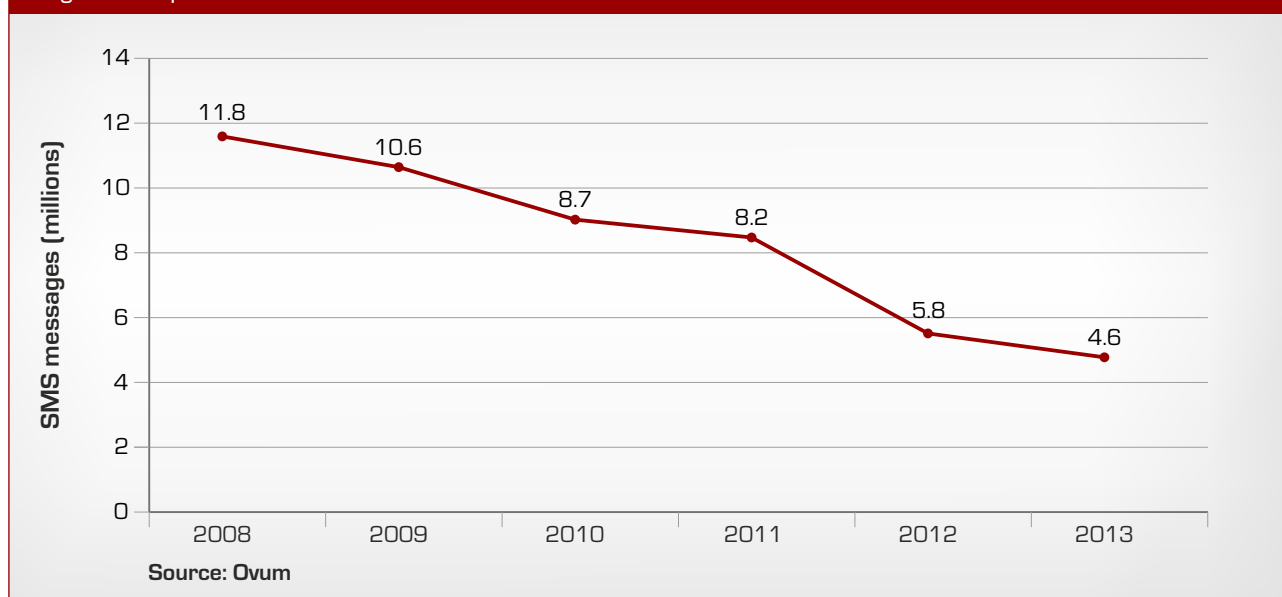
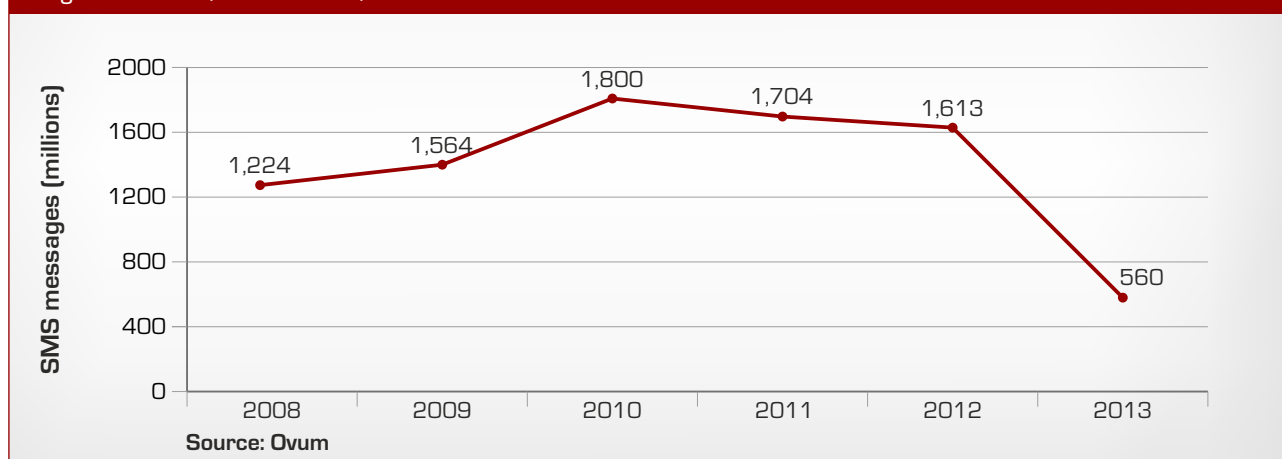
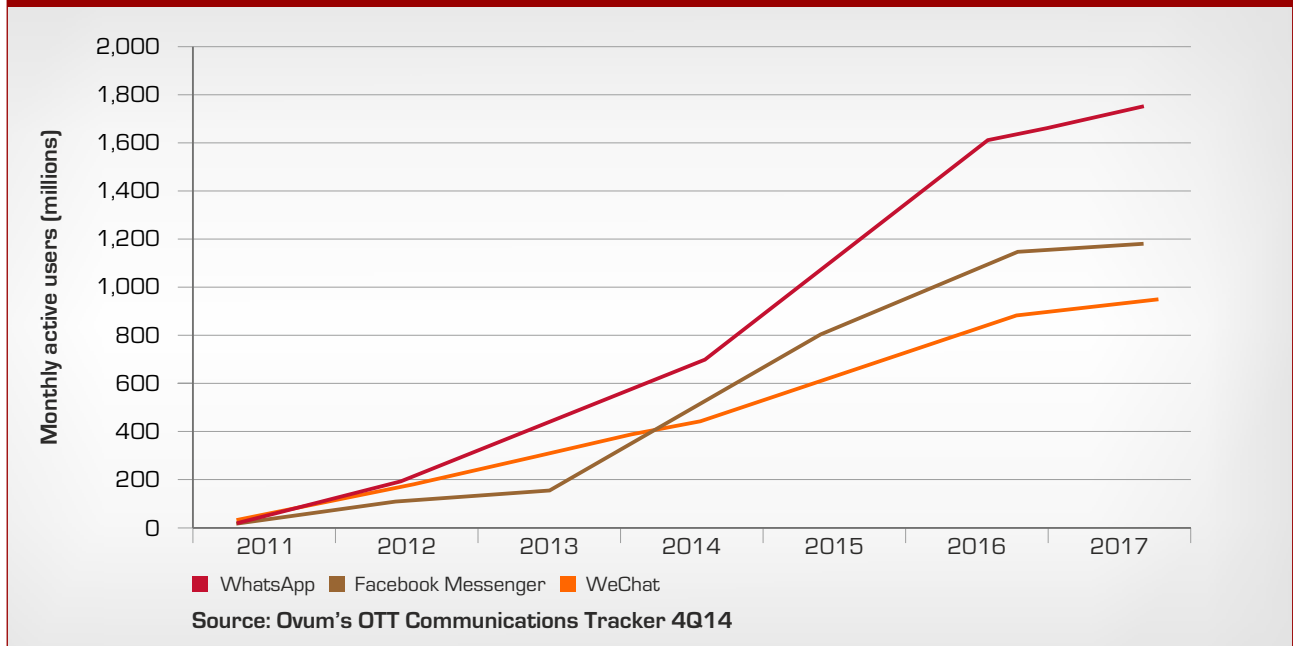


Figure 2: KPN, SMS traffic, 2008 - 13



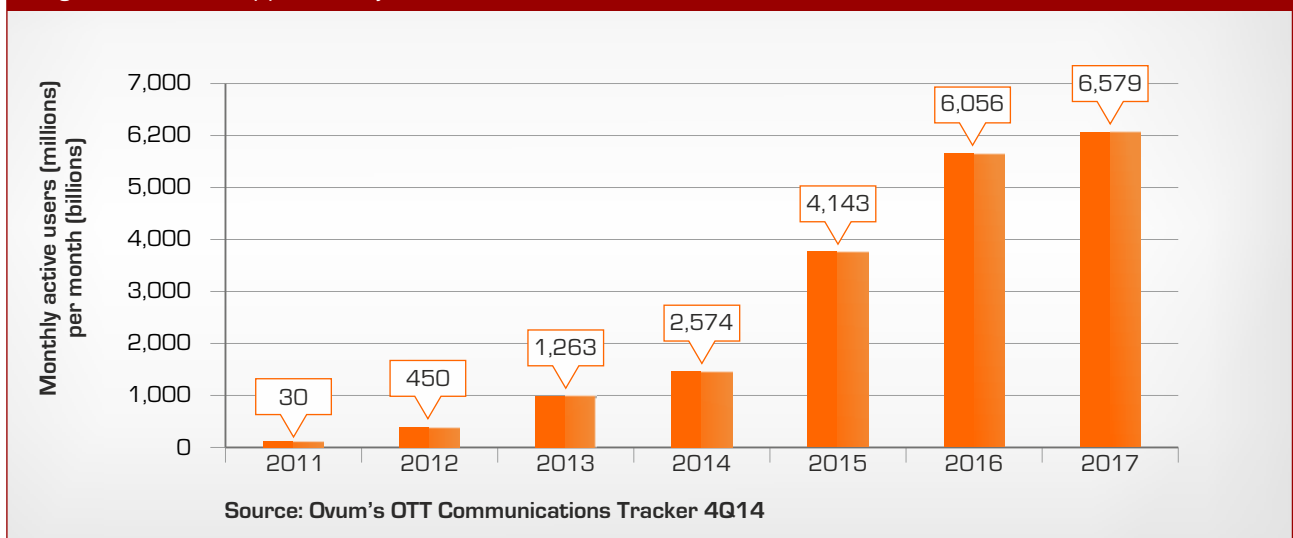
Meanwhile, providers of OTT communications apps such as WhatsApp, Facebook Messenger, WeChat, KakaoTalk, and Line have seen a substantial increase in users and traffic; Kakao Talk and Line are also generating significant revenue. Ovum estimates that WhatsApp will reach 1.1 billion monthly active users (MAUs) by the end of 2015 (see Figure 3) – the company stated in April that it had 800 million MAUs – while Facebook Messenger will reach just under 900 million MAUs and WeChat will have 657.2 million MAUs. Facebook stated in June that Facebook Messenger had 700mn MAUs, while Tencent said in May that WeChat had 549mn MAUs.

Figure 3: Global, monthly active users, selected OTTs, 2011 – 17



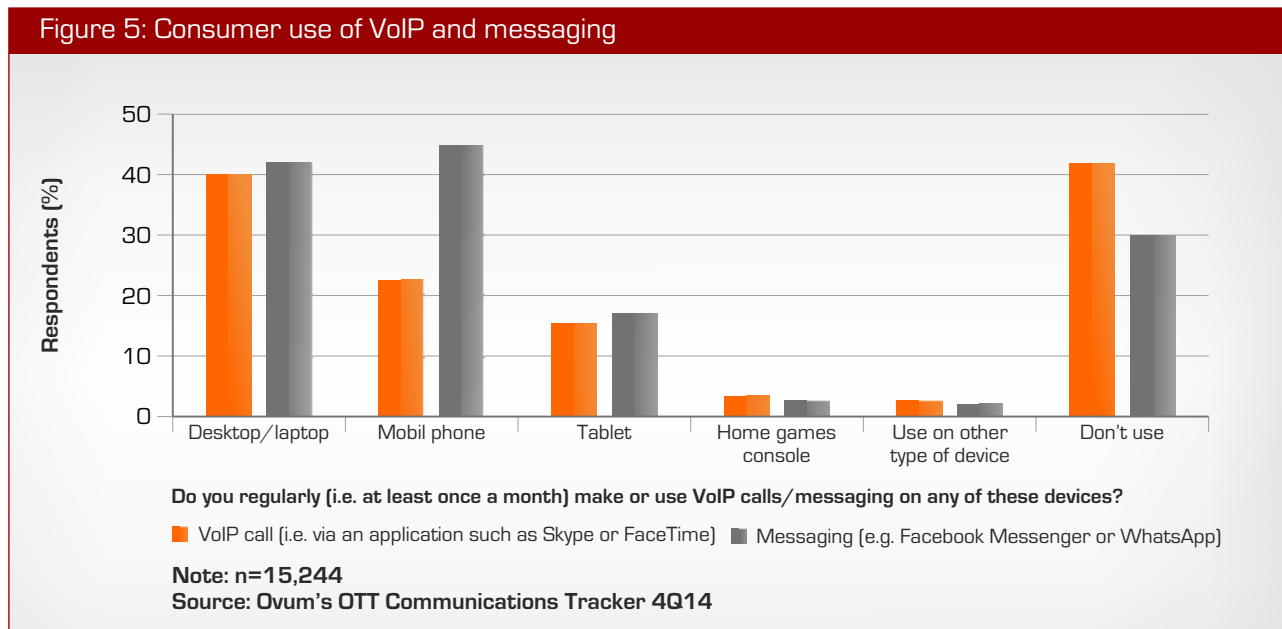
The ability to send messages for free, regardless of length or content, combined with the real-time conversational nature of chat apps, means that users of these apps typically tend to send more messages than if they were to conduct the same conversation using SMS. Consequently, the total combined annual traffic for the more highly-penetrated chat apps such as WhatsApp has already vastly exceeded total annual SMS traffic, with WhatsApp alone expected to generate 4.1 trillion messages (sent and received) **per month** in 2015 (see Figure 4): In 2013, the **annual global** SMS traffic totaled 7.6 trillion messages, according to Ovum's World Cellular Data Metrics.

Figure 4: WhatsApp monthly traffic, 2011 – 17



As mobile users migrate their messaging – and, increasingly, voice – behavior to communications apps, the danger for telcos is that their customers will switch completely from traditional messaging and voice services provided by the operator, to a third-party communications app such as WhatsApp, Facebook Messenger, WeChat, Kakao Talk, or Line. A number of these apps have added voice calls to their messaging capabilities; WhatsApp is the most recent to have done so, in April 2015. According to Ovum’s 2014 Consumer Insights Survey, 46% of the 15,244 respondents stated that they used a third-party messaging app on their mobile device at least once a month, and 22% said that they made a VoIP call via an app on their mobile device at least once a month [see Figure 5].

Figure 5: Consumer use of VoIP and messaging



Should customers choose to only use a third-party communications app to chat or call their contacts, telcos face the very real prospect that a significant proportion of their subscribers will only require data plans from their mobile operator – and even that scenario may be threatened by the increasing penetration and use of free Wi-Fi.

Also, most communications app providers – having grown their subscriber numbers by offering free in-app messaging and voice calls – are now providing features from which they can generate revenues, such as games and sticker packs for consumers, and advertising inventory, official accounts, and payments for brands. In addition, communications apps providers are enabling their services across multiple devices – mobile, tablet, desktop/laptop, and Web. In this way, communications apps are rapidly becoming mobile users’ first point of call on all of their devices. The combination of all of these factors is reducing the

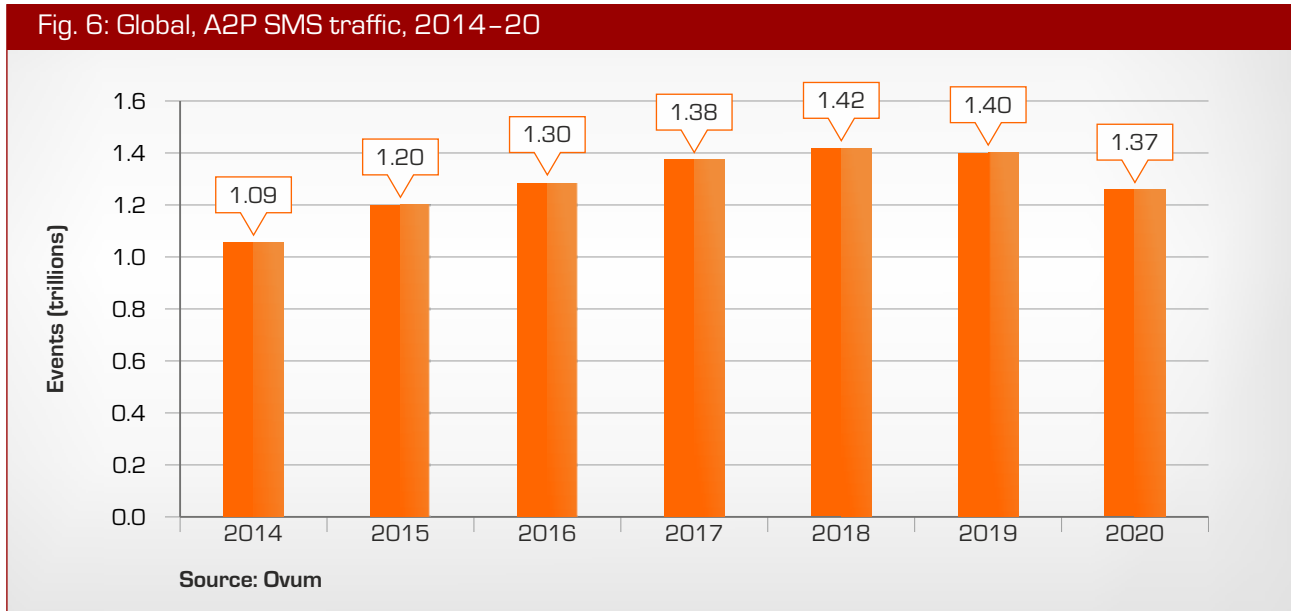
importance of the role of the operator as a provider of communications services. Initially, mobile users turned to communications apps because they enabled free in-app messaging and/or voice, but “free” is now only part of the attraction; communications apps are increasingly providing users with a much more engaging experience.

A2P SMS builds as key enterprise verticals engage

Not all mobile subscribers have switched to using communications apps for messaging – especially in emerging markets – and, of those that have, a proportion will continue to also use SMS. Alongside voice, SMS remains a universal communications channel on the mobile device; in turn, global mobile penetration currently stands at 98.6%, according to Ovum. Various studies attest to the attachment between mobile subscribers and their devices, and their engagement with mobile applications and services, including SMS and messaging apps.

Enterprises are increasingly aware of the potency of using mobile messaging to communicate with their customers, employees, and the general public. For now, SMS is regarded as the standard go-to mobile messaging communications channel for enterprises, owing to its reach, relatively low cost, accessibility (for both end users and enterprises), and engagement rates. And, while mobile operators may be experiencing a decline in their P2P SMS traffic as a result of the increasing penetration of communications apps, the providers of these apps are themselves using SMS either as part of an integrated messaging service (such as iMessage) or to provide authentication and notifications. Ovum forecasts that global A2P SMS traffic will reach 1.42 trillion events by 2018 (see Figure 6).

Fig. 6: Global, A2P SMS traffic, 2014–20



Operators have typically not engaged directly with enterprises to offer A2P SMS, instead providing wholesale SMS to third-party connectivity providers such as SAP Mobile Services, Mblox, BICS, Syniverse, and Tyntec. These companies in turn enable A2P SMS for companies in a range of industry verticals, including banking and finance, retail, healthcare, travel and transportation, social networking and media companies, and OTT communications providers, among others.

There are also a number of messaging aggregators which typically focus on providing SMS delivery at the lowest possible per-message cost, and with less emphasis on reliability and security, which in turn brings into question the quality of their service. For example, these companies may sacrifice low latency for cost, by routing SMS traffic through one or more other aggregators in order to reach the terminating telco network with the lowest SMS termination rate.

In markets where there is a high penetration of smartphones and app usage, Ovum predicts that the role of A2P SMS will start to decline as enterprises become more comfortable with the idea of using apps, push notifications, and other forms of IP-based communications to contact their customers, employees, or the general public. However, enterprises will tend to use IP based communications services for communications and transactions that are less time-critical, meaning that A2P SMS will retain its relevance as a secure, reliable, and quick delivery channel.

Telcos will need to decide on the extent to which they wish to engage with the enterprise market, either directly or via a third party such as, for example, Urban Airship or Openmarket (with respect to push notifications). They will also need to ensure they have the relevant technology capability and business models in place in order to meet the changing communications requirements of enterprises.

Telcos' focus on scale rather than innovation results in commoditization

For many years, mobile operators' main priority with regards to their messaging platforms was to ensure that these platforms had the capacity to support ever-increasing amounts of messaging traffic, as well as peak traffic at irregular intervals (e.g. holidays such as Christmas and New Year). Until relatively recently, SMSCs and MMSCs typically consisted of dedicated hardware and software that was installed on site at the telco. Indeed, telcos operating legacy environments or needing to process substantial amounts of SMS may still be operating dedicated SMS hardware and software. These dedicated platforms do not allow telcos to easily develop and offer new SMS-based services, nor do telcos have any incentive to invest in developing such services, since basic SMS became exceedingly popular among mobile users with seemingly very little effort required from the operators. As such, SMS has for some years been regarded as a commodity, along with mobile voice; mobile data is now also close to reaching commoditization.

Network investment absorbs resources

Telcos have spent significant sums of money to acquire spectrum and progressively upgrade their voice and data networks to 3G, 4G/LTE, and beyond. Such investment is essential for telcos to support the growing demand for data services, to more efficiently use spectrum for voice and data services, to provide a better quality user experience for the consumer and enterprise markets, and to enable their customers to access the third-party content and services that the telcos themselves are not well-equipped to provide.

According to Ovum's analysis of the capital expenditure of 45 telcos in 2014, total capex on networks and IT grew 3% year-on-year to more than \$260bn, with networks accounting for 41% of total contracts awarded. In the mobile access market, 4G/LTE network rollouts, femtocells, and Wi-Fi networks dominated the publicly announced contracts, while contracts awarded for the network core were mostly for the installation of IP infrastructure.

Telco investment in spectrum acquisition, network upgrades, and IT has absorbed available resources, a percentage of which might have been directed towards investing in upgrading and enhancing traditional voice and messaging services. Telcos did not regard the messaging as a priority, believing that, as operators, they were the primary source of services for their customers. That perspective is rapidly changing, as OTT communications apps become more popular. Given the squeeze on telco budgets, telcos are now placing pressure on the suppliers of communications infrastructure to also reduce TCO.

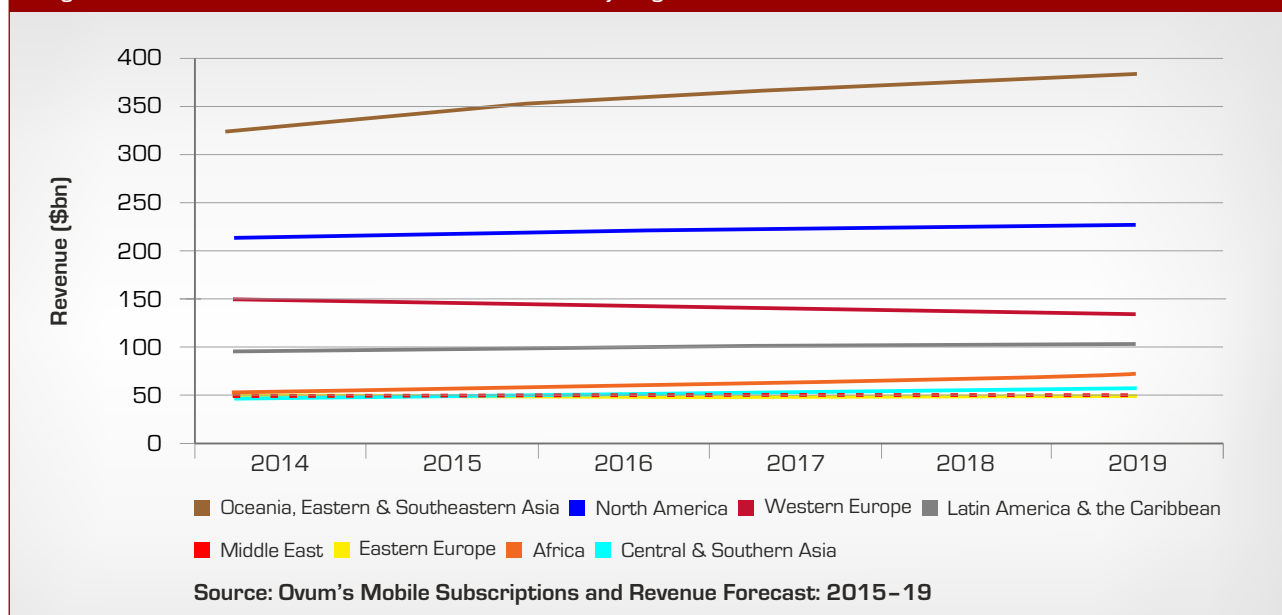
Strategic approaches for telcos

Revenue pressure means telcos need to economize while they modernize

Ovum's analysis of capital expenditure on infrastructure found that, while total capex for the 45 telcos covered by the analysis grew 3% year-on-year, the total revenue growth was just 0.6%. Indeed, total global mobile service revenue is forecast to continue to grow slowly to 2019, according to Ovum, increasing at a CAGR of just 1.9%, from \$999.9bn in 2014 to \$1.05tn in 2019.

While Western Europe will be the only region to experience a decline during this period (see Figure 7), from \$148.9bn in 2014 to \$137.3bn in 2019, a CAGR of -1.6% over the forecast period, CAGR in all other regions will range from just 0.6% (for Eastern Europe) to 4.8% (for Central & Southern Asia).

Figure 7: Global total mobile service revenue, by region, 2014–19



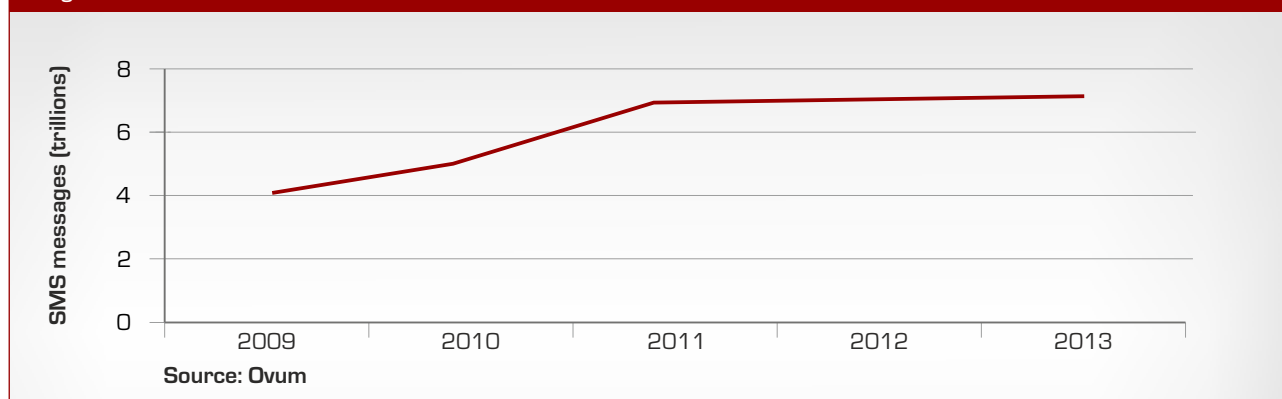
The downwards pressure on mobile operator revenues, combined with the increase in their capital expenditure, means that telcos are actively assessing how they can economize while still remaining competitive. As a result, telcos are placing pressure on their suppliers to provide technology and services that will enable them to effectively offer new products to their customers, while continuing to support legacy offerings, at the lowest possible cost. Vendors are answering this challenge by evolving their own platforms, adopting new delivery models such as network function virtualization and cloud, and establishing more flexible business models.

Keeping the old while embracing the new (IP communications)

Even though a proportion of telcos' smartphone subscribers are transitioning their messaging and voice to third-party communications apps, a subset of these subscribers will continue to use SMS – mainly to contact non-communications-app users or in roaming scenarios where it is less expensive to send an SMS than it is to use cellular mobile data. Also, in emerging markets, where the penetration of smartphones and mobile broadband remains low, mobile subscribers are still very much reliant on SMS, MMS, and USSD as a means of communications as well as enabling them to access services and content provided by their operator and third parties.

This means that, while telcos in developed markets have typically experienced a decline in their messaging traffic and revenues, this decline has been somewhat mitigated by the continued increase in SMS in emerging markets. As a result, SMS traffic volumes held firm year-on-year at 7.6 trillion in 2013 (see Figure 8), representing flat growth on 2012 according to Ovum's World Cellular Data Metrics. While full-year 2014 data is not yet available, SMS traffic totaled for the first nine months of the year totaled 5.4 trillion messages, from which Ovum has estimated that, for the full year, SMS traffic will total in the region of 7.2 trillion messages in 2014, a decline of about 5.3% year-on-year. Meanwhile MMS traffic in 2013 totaled 327.2 billion messages, up 3.4% year-on-year, but the data for the first nine months of 2014 is trending a steep decline in MMS traffic in 2014, down by 53.4% to just 152.5 billion messages.

Figure 8: Global, SMS traffic, 2009–13



Mobile subscribers' continued use of legacy messaging services such as SMS, MMS, voicemail, and USSD – particularly in emerging markets – means that, for the foreseeable future, telcos will need to continue to provide these services. As the penetration of smartphones and mobile broadband within their subscriber bases increases, telcos will also need to position themselves for a future in which their customers expect an enhanced, IP-based communications experience, whether that is delivered via the telco or a third party. Telcos are already evaluating the relative merits of technologies such as WebRTC, Wi-Fi Calling, and the GSMA's Rich Communication Services (RCS), or they are deploying proprietary applications and services; some operators are pursuing multiple strategies in tandem.

However, telcos are also experiencing a reduction in their messaging and voice revenue due to their subscribers' use of OTT messaging and VoIP apps: Ovum estimates that in 2014, mobile operators lost up to \$40bn in SMS revenue globally, and up to \$32bn in voice revenue. Revenue loss is a significant problem for telcos, but equally as significant is the risk that their subscribers switch completely to OTT applications for their communications services, effectively lessening the role of the telco. The fact that telcos are offering unlimited messaging and voice minutes as part of a service bundle is declining in relevance – OTT apps are adding features which make them more compelling and engaging to mobile users, moving on from simply providing “free” communications as a customer acquisition tool.

Focus on messaging VAS to protect revenue and prevent churn

While continuing to provide legacy messaging services, telcos will need to examine how they can use these services to generate revenue, and to prevent their customers from churning to third-party communications apps. Unfortunately, messaging-based value-added services (VAS) are a lost opportunity for revenue for operators in developed markets, where the mobile phone is just one platform that consumers and enterprise can use to access or provide communications, content and commerce (alongside tablets, desktop/laptop, smart TVs and games consoles, among others). Also, third-party communications apps are already well-entrenched in developed markets.

However, in emerging markets, where the mobile phone is typically the primary platform that consumers and enterprises use to access or provide communications, content, and commerce, there is significantly more opportunity for telcos to provide messaging-based VAS. Examples of the types of messaging-based VAS that telcos are providing in emerging markets are: mobile banking and payments (including microloans); prepaid recharge/top-up; collect SMS services (where the recipient pays to receive an SMS from a sender who has little or no credit); roaming activation/deactivation; and content subscription services.

New business models are required for evolving communications services

Traditional licensing models are no longer fit for purpose

Traditionally, vendor business models for SMSCs and MMSCs were based on vendors charging telcos for a combined hardware and software platform based on the telco's estimated peak throughput of messaging traffic – even if these peaks were only reached a few times a year. This model meant that telcos typically paid vendors for capacity on SMSCs and MMSCs that remained unused for much of the time.

As vendors transition their messaging platforms to NFV and the cloud, business models are also changing. Depending on the messaging service, under the NFV delivery model, vendors are charging telcos licensing fees for their software on an annual or monthly basis, or they are negotiating a revenue share on certain consumer VAS, such as, for example, collect SMS services. In addition, vendors would charge a recurring annual or monthly fee for technical support.

Deploying messaging services using NFV in the cloud would require the operator to pay the vendor for hosting costs in addition to software licensing fees, revenue share (depending on the messaging service), and technical support charges.

The requirement to load-balance multiple types of messaging traffic within an integrated messaging platform has also resulted in the development of a new business model, the floating license, by mobility solutions provider Mahindra Comviva. Mahindra Comviva has deployed the floating license across several telco operating companies in Africa, reducing their OPEX by over 30%.

Floating license can help manage capacity demands and costs

A floating license is a single software license which covers all of the messaging services that telcos wish to offer their customers – such as SMS, MMS, voicemail, USSD, and IP communications services – and which allocates capacity in terms of the maximum number of transactions per second (TPS) for each messaging and communications service. It is a business model enabled by NFV, messaging and communications services, and the underlying management tools, are provided via a series of virtual machines.

The floating license means that a telco can dynamically scale capacity for multiple services as required across the relevant virtual machines, up to a predetermined TPS limit for each service. Telcos can allocate and dynamically scale capacity by service (SMS, MMS, USSD, voicemail, and IP communications), within service sub-segments (for example, P2P SMS and A2P SMS), or for the multiple services and applications enabled by USSD. Capacity up to the predetermined limit for a particular service or sub-service is reserved specifically for that service, meaning that if another service looks like exceeding its TPS limit, the floating license would ensure that capacity remains in place for all other services so as not to degrade performance.

However, a telco can use the floating license to reallocate resources as required, to meet the needs of its consumer and enterprise customers. For example, a telco may have a floating license that provides it with capacity (in terms of TPS) for SMS, MMS, and USSD. If one of its customers wishes to run an A2P SMS campaign, for which the telco does not have sufficient A2P SMS TPS under the floating license, the telco can determine whether there is unused TPS in one of the other channels – for example, USSD – which can be reallocated to the SMS channel so that it can run the A2P SMS campaign. Once the campaign is complete, the TPS will revert to the existing allocations for all of the services that the floating license covers.

Another key benefit of the floating license is its flexibility. Telcos do not need to purchase separate licenses for each messaging service provided by the vendor. This means that the floating license makes it easier for telcos to migrate to new messaging services, for example, IP-based communications services such as WebRTC.

The floating license would be deployed as a licensing server module alongside the platforms for which it would be used. It can be applied to one or more messaging services, and also to add-on services such as a firewall or a reporting tool. Telcos would be able to use the licensing server to view capacity usage across all of the services which come under the floating license.

Finding the optimal messaging network architecture for revenue growth

Operators need to remove silos, ensure flexibility and scalability, and facilitate A2P and IP communications

Underpinning the evolution of business models is the fact that the rapidly evolving mobile messaging market is forcing vendors to change the structure of the platforms that telcos use to deliver messaging services to their customers. The siloed approach of deploying dedicated hardware and software platforms for separate messaging services – i.e. SMSCs and MMSCs – is no longer the most cost-effective or practical way of operating and managing legacy messaging services. These platforms are expensive to scale, do not use capacity effectively, do not adequately cater for growth in A2P SMS traffic, and typically require the addition of hardware and software to enable the development of VAS or services such as IP-based communications. It is often the case that messaging platforms are provided by different vendors within the same telco, which means there is also a duplication of functions, such as integration and management, which in turn has cost implications.

Consequently, telcos are looking for multipurpose platforms that enable them to provision and manage multiple legacy messaging services, deploy new communications services when they are in a position to do so, and scale resources across multiple services as required. The integrated messaging platform would include virtual machines for messaging services such as SMS, MMS, USSD, IP messaging, and voicemail, as well as for operations and customer care. It would also enable connectivity to network capabilities, such as billing, HLR, IN, and IMS, as well as providing access for third-party content providers. A single GUI enables the operator to manage all of the capabilities of the platform.

Floating license, network functions virtualization, and cloud reduce costs, allow for growth, and enable new services

Evolving the structure of their messaging platforms is only one of the steps that vendors have taken in order to reduce costs, both for themselves and for their telco customers. The alteration of licensing models and the introduction of network functions virtualization (NFV) and cloud-based delivery channels are also playing significant roles in minimizing TCO. Additionally, these strategies will help operators to develop and offer new revenue-generating services. Vendors are also paying more attention to their cost bases, balancing their R&D investments between low-cost development centers in emerging markets and highcost development centers in developed markets.

NFV enables much of the functionality of messaging platforms in software, which means that telcos can choose to purchase their own hardware, and subsequently use their purchasing power to reduce costs. Vendors are also enabling telcos to take NFV for messaging platforms into a private or public cloud, which would further reduce TCO since the telco does not need to purchase hardware.

Enabling messaging platforms via NFV and cloud will benefit telcos in other ways. They will offer telcos the ability to more cost effectively and easily offer their customers services based on emerging technologies such as IP-based communications and WebRTC, and also the ability to load-balance multiple types of messaging traffic. This is particularly relevant with regards to P2P and A2P SMS; telcos need to prioritize P2P SMS, but they also need to allow for the increasing use of A2P SMS by enterprises, which typically requires large volumes of A2P SMS to be sent during a short period of time. Telcos also need to be able to manage varying traffic requirements for other messaging services such as MMS and USSD.

Conclusions

- The way in which consumers and enterprises engage with mobile messaging, and communications services in general, is rapidly evolving, and telcos need to be able to keep pace in order to mitigate against lost revenue and potential customer churn, and to reduce TCO.
- In answer to this challenge for telcos, vendors are moving away from providing legacy silo-based messaging architectures, which are no longer cost-effective or fit for purpose.
- As their messaging platforms come to end-of-life, telcos are replacing them with new integrated messaging platforms that enable them to flexibly provision and manage their messaging services, and to create VAS that may help to reduce churn.
- Telcos should also consider using NFV and cloud for the deployment of integrated messaging platforms, since these technologies will enable them to further reduce TCO and manage scale, and to become more agile as service providers.
- In addition to evolving their messaging platforms, vendors have developed more flexible business models, such as the floating license – a single license covering multiple messaging services which enables telcos to flexibly reallocate capacity as needed.
- Telcos should give serious consideration as to whether the new business models offered by vendors, such as the floating license, can be beneficial for their own circumstances.

Appendix

Methodology

This paper was researched, authored and produced by Ovum in association with Mahindra Comviva, as part of a series of papers assessing the current state and future market direction of network transformation services for mobile operators.

About Mahindra Comviva

Mahindra Comviva is the global leader in providing mobility solutions. It is a subsidiary of TechMahindra and a part of the USD16.7 billion Mahindra Group. With an extensive portfolio spanning mobile finance, content, infotainment, messaging and mobile data solutions, Mahindra Comviva enables service providers to enhance customer experience, rationalize costs and accelerate revenue growth. Its mobility solutions are deployed by 130 mobile service providers and financial institutions in 90 plus countries, transforming the lives of over a billion people across the world. For more information, please visit www.mahindracomviva.com.

Ovum Consulting

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