Proven Use Cases for Mobile Operator Data Monetization in Emerging Markets

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Introduction

Mobile Operators in emerging markets are just as motivated to monetize their networks as their counterparts in mature markets. The business strategy to do so is very much reliant on smart and creative pricing, packaging and leveraging of customers' connectivity needs in an ever increasing digital world.

This paper documents proven use cases for mobile data monetization in emerging markets. These use cases are enabling operators to either increase revenues and/or decrease costs to improve their bottom line.

The means to implement these use cases are policy control, charging functions and granular network, application and subscriber analytics that may very well be installed in most network operations. These functions play a critical role, allowing operators to implement their pricing strategies and marketing campaigns.

Even though there are differences in the purchasing power between customers in emerging markets and mature markets there are many opportunities to be leveraged. Below is a table showing the unique characteristics of internet connectivity customers to be served in emerging markets.

Table 1 - Characteristics of emerging markets' mobile data customers

Characteristic	Reason
Prepaid Payment Method	Prepaid subscriptions represent the majority of mobile subscriptions in emerging markets, ranging from 75% up to almost 99% in some countries[1].
Budget Sensitive Customers	The average revenue per subscriber is very low and usually does not rise beyond $5 per month. Any additional comes in very small cash increments.
The Preferred Mobile Application is Messaging	Using internet services is second in line to the need to simply communicate.
The Preferred OTT applications are VoIP & IM	Customers need to talk to each other and send each other messages. The basic need to communicate to another person is achieved by VoIP and IM.
Free WiFi Dominates Internet Use	Customers will attempt to use free WiFi to access the internet whenever possible. Many do not even have a data package and most of the connectivity to the internet is achieved via WiFi. In some countries (e.g., Peru, the Philippines), WiFi is the main means of using the internet for more than 30% of users[2]
Mobile Internet is more prevalent than Fixed	In developing countries, the number of mobile-broadband subscriptions continues to grow at double digit rates, reaching a penetration rate of close to 41%. While Fixed-broadband penetration remains low – less than 1% in Africa[3]

[1] Ovum (Informa) Prepaid Strategies 2014 survey (here)
[2] Alliance for Affordable Internet Report 2016
[3] ITU ITC Facts and Figures 2016

Contemporary Use Cases

The following section documents four use cases implemented by mobile network operators in emerging markets to generate tangible business value to both the operators and their customers. Each use case describes the value derived in mature markets and highlights additional value and benefits in emerging markets.

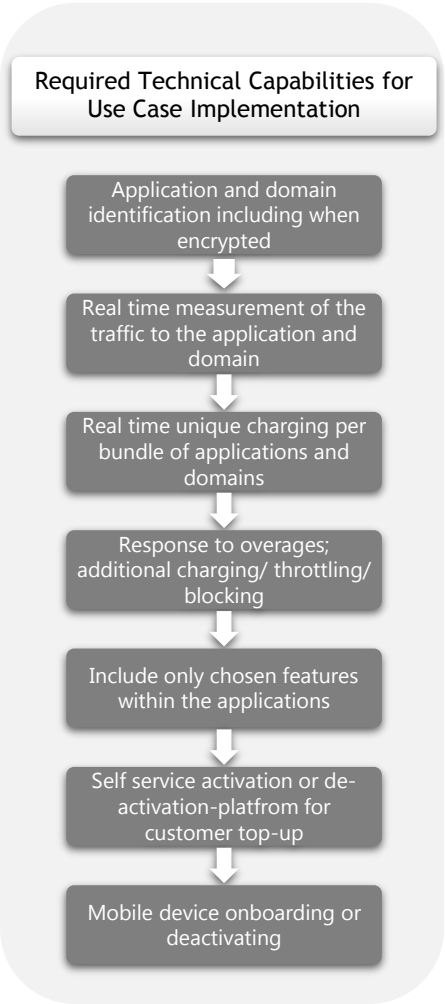
Use Case #1 Application-based Charging

Business Impact

Emerging Market Opportunity

Mobile operators in emerging markets not only enable and facilitate communications between people (and things). They are often the driving force behind the demand for internet services and the content that goes with it. Many customers are able to access the internet only from their mobile device.

Due to the distinctive characteristics of emerging markets, (see table 1) operators are obliged to offer and charge for small amounts of application-specific data or content in a simple way. Leading operators in emerging markets are offering attractive and relevant packages based on the unique characteristics of particular target segments.



Operator Strategy

Operators in emerging markets aim to benefit from well-known and widely used applications and content by bundling these into their service packages. Operators that combine Facebook/WhatsApp/Snapchat and the like into their package bundles tend to enjoy increased media exposure and positive sentiment from the target markets. There is an opportunity to shift subscribers of zero-rated services to paid services. **28% of prepaid customers who use zero-rated applications eventually upgrade to full-pay prepaid packages**. (i.e., they use a full-cost or service-specific plan). In addition, **35% of all zero-rating prepaid users**

continue to use the zero-rated service and a paid plan[4]. Likewise, there is also the opportunity to shift subscribers from prepaid into postpaid as the price gap narrows and the value substantially increases.

South African operators Vodacom, Cell C and MTN are offering other products that can cut prices for consumers: customized products on a package, combined bundles or zero rated services[5].

Table 2 - Zero rated service by South African operators

Operator	Product	Features
Cell C	Free Basics	Facebook's Internet.org
	WhatsApp	Free WhatsApp on Trace Mobile
Vodacom	Vodacom e-school	Educational learning app
	Career site	Zero-rate on NXT LVL
MTN	Twitter Wikipedia	Only when accessed on Opera Mini
	D6 communicator service	Allow schools to communicate with parents (100MB data cap)
	MTN play	Selected sites are zero-rated
	MTN Vu	Video streaming services Max Vu subscribers only

There are various go-to-market implementations built on application/content pricing

a) **Unlimited WhatsApp** instructs the charging or rating function to zero-rate the use of this specific app so using it does not count against their quota. In effect this is interpreted by the customers as a free app. For example, zero-rating music is often used to entice customers in with a loss leader, when targeting the youth segment. Operator example: **Tigo** Colombia (website) offers a bundled zero-rated WhatsApp and Facebook.

[4] Alliance for Affordable Internet Report 2016
[5] Research ICT Africa - Prepaid Pricing Trends in South Africa - Q2 2016

b) **Lifestyle packages** bundle apps in categories such as social, physical fitness, travel and location, financial, news and others. The bundles are based on the market segment the operator wants to target. Customers identify with a particular digital lifestyle and are more likely to upgrade to this type of

package, resulting in increasing customer satisfaction and operator ARPU. These customers are not choosing to buy a data package; they are choosing to associate with a certain digital lifestyle.
Operator example: **Globe Philippines** (website) offers Digital Lifestyle packages as an add-on to data services.

Use Case #2 Cell Congestion Management

Business Impact

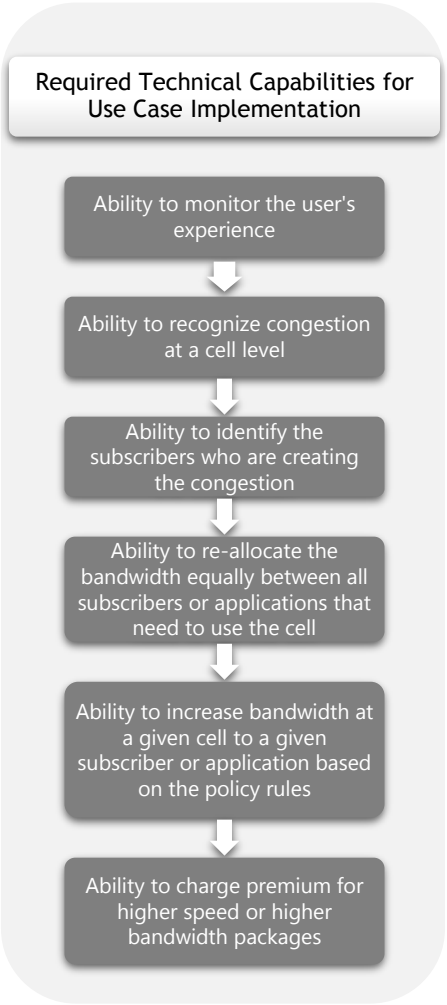
Make Money	Save Money	Increased Customer Satisfaction	Increase Customer Base	Decrease Churn	Strengthen Brand Name

Emerging Market Opportunity

Mobile operators in emerging markets can utilize cell congestion management to enhance customer experience at all levels of cell capacity. Additionally, these operators are leveraging this capability to offer a priority service for VIP and business customers in times of congestion. Hence, the prioritization service in times of congestion can generate additional revenue for operators in emerging markets.

Operator Strategy

According to 2016 Heavy Reading report "Network congestion and overload" is by far the most common cause of network outages and degradation, with 81 percent of survey respondents citing it. The **cost impact on brand reputation and lost profit is typically one to five percent of revenue**[6]. Operators manage traffic down to the individual cell and alleviate backhaul congestion in real time by gathering intelligence about their network and subscribers' experience at the cell level. Congestion management is intended to manage costs and reduce customer churn by providing the operator with precise network knowledge and control, and contribute to the overall user experience by ensuring network availability and fair use per cell[7].



Use Case#3 Application-Level Revenue Assurance

Business Impact

Make Money | Save Money | Increased Customer Satisfaction | Increase Customer Base | Decrease Churn | Strengthen Brand Name

Emerging Market Opportunity

In emerging markets operators are even more susceptible to mobile data fraud created by DNS tunneling or domain forging, because the incentive is high! Cost of mobile data is high and there are often fewer safe guards in place to combat fraud. Operators need to protect their assets and make sure that offering new and

[6] Heavy Reading Report Feb 2016 Mobile Network Outages & Service Degradations
[7] http://www.lightreading.com/mobile/controlling-ran-congestion-the-experience-is-everything/a/d-id/698516

innovative packages that include zero-rating of apps or domains will not create a revenue leakage.

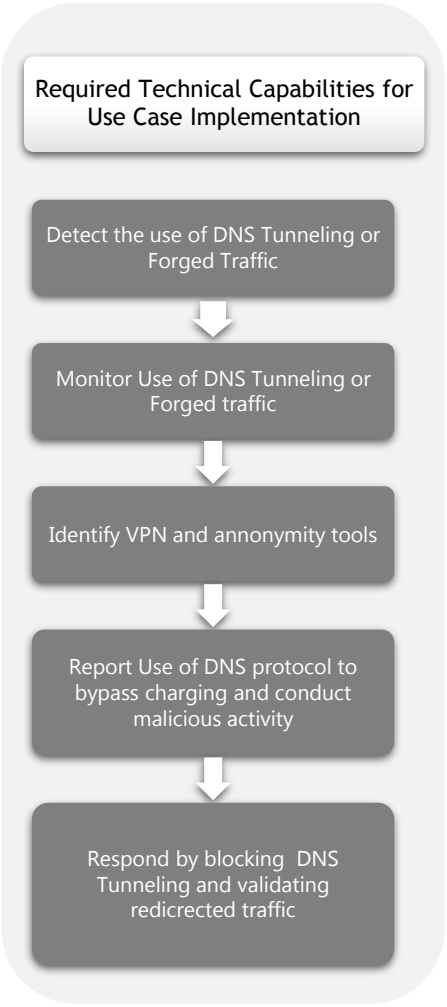
Operators can use solutions that protect their investments and make sure only the specific expected usage of free or zero-rated packages is used by legitimate customers and only by them.

Operator Strategy

Operators that offer unique packages based on applications or specific content need to be sure that when they zero-rate or discount a certain destination, hackers or abusers don't exploit vulnerabilities to bypass charging systems. Abusers will attempt to obfuscate their traffic to appear identical to that being zero-rated. There are two common implementations built on application-level revenue assurance:

a. DNS Tunneling – Exploiting the DNS protocol to bypass a communications operator's portal and access web data without being charged. Fraudulent use of the DNS protocol is also a little-known vector for the theft of sensitive data.

b. Domain Forging – An operator may be zero-rating Facebook as part of a lifestyle package. In such cases, abusers can sign up for this package and forge their data to make it appear as if it is all Facebook traffic, regardless of the true application or content.



Both these methods can be defeated by application-level identification of traffic and the ability to block access to VPN and other anonymity tools.

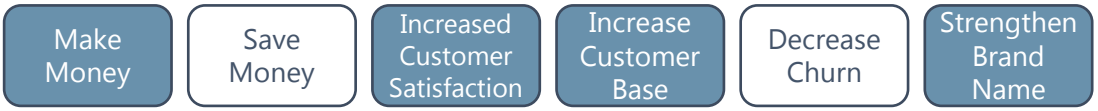
In March 2016, it was reported that some Angolans were using free (zero-rated) access to Wikipedia and Facebook to trade copyrighted movies, music, and television shows. To put a figure on this volume of revenue leakage, we can estimate the operator revenue for a single 2-hour HD 1080 movie (4Gb) would be approximately US$28-30[8]. While a complete TV show season such as The Game of Thrones Season

[8] Based on Angolan prepaid prices - http://prepaid-data-sim-card.wikia.com/wiki/Angola

3 Complete 1080p Blue Ray (44.51 GB) would be approximately US$120-$150 in lost revenue**. It is not uncommon for the level of fraud to well exceed 10% of revenue.**

Use Case#4: Visibility and Control of Enterprise Applications

Business Impact



Emerging Market Opportunity

Mobile operators in emerging markets provide connectivity to many important industries such as construction, mining, utilities and banking. Many of these industries do not have stable access to fixed-line internet, so mobile connectivity is even more essential. In addition to standard internet connectivity, leading operators in emerging markets are starting to offer business customers additional services such as securing mobile traffic against malware and viruses, content filtering, traffic and application monitoring, tiered services and traffic prioritization.

Examples of Business Services offered by Mobile Operators

Acceptable Use Policy – Since most devices used today are connected to the internet, enterprises are defining the acceptable use policy with connected devices during working hours. The policy may include anything from social network blocking to blocking of gaming and betting domains. After the policy is set and agreed, it can be enforced in the network.

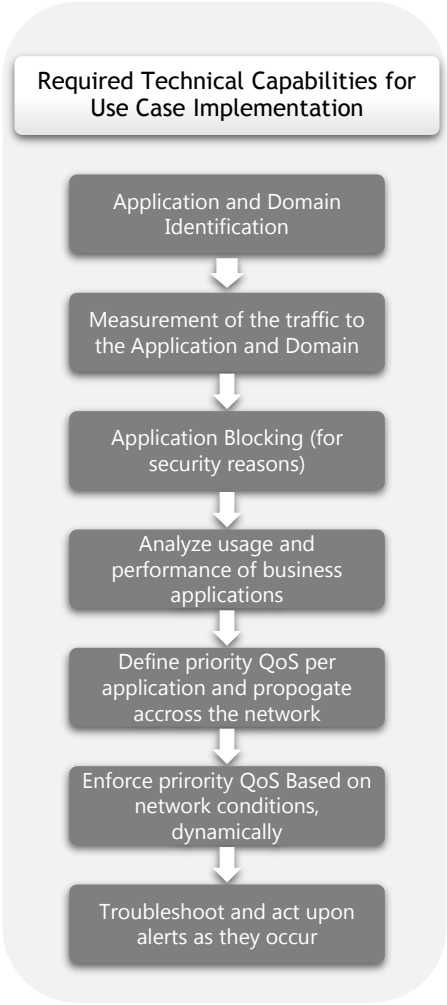
Business Application Prioritization – Solutions are in place to identify business applications such as Oracle, Salesforce, Skype, ERP and VPN traffic, and provide access to these apps based on a set performance indicator even at the expense of reducing the quality of non-business applications. Enterprises are willing to pay extra to ensure Business Application Prioritization that guarantees their apps are getting the promised quality of service.

Tiered QoS - Business class mobile internet – gives priority to business class customers and to their business related apps.

Self-care portal for enterprises - This service provides protection and productivity to enterprise customers. Protection is achieved by blocking certain apps. Productivity is achieved both by blocking non business apps that may waste time for employees and by prioritizing business-critical apps.

Operator Strategy

Operators are creating new revenue opportunities by expanding the range of services they are offering to enterprise customers. To remain efficient and competitive, companies must ensure application availability and create a secure environment for their business customers. Operators are enabling higher productivity for enterprise employees and a simple method for execution of the acceptable use policy for data use on smartphones.



Case Study:

Every enterprise relies on networked applications to conduct business successfully. Corporate networks must ensure optimal application performance and response-time to all users and all access modes. Application control begins with understanding how critical applications are used, how they perform under different network conditions, and what are the factors IT can control to ensure their delivery. Based on this analysis, each application gets a tailored QoS policy which may define congestion thresholds along with some form of expedited forwarding. It may also define guaranteed minimum bandwidth, or different data rates for inbound and outbound traffic. Altogether, these QoS parameters ensure that users of CRM, ERP, VoIP, video conferencing, and other business applications are able to work more productively and with greater satisfaction.

Nascent Use Cases

The following section documents two additional use cases that have been identified in mature markets and that demonstrate significant future potential in emerging markets. Each use case describes the value currently derived in mature markets and highlights the likely additional value and benefits in emerging markets.

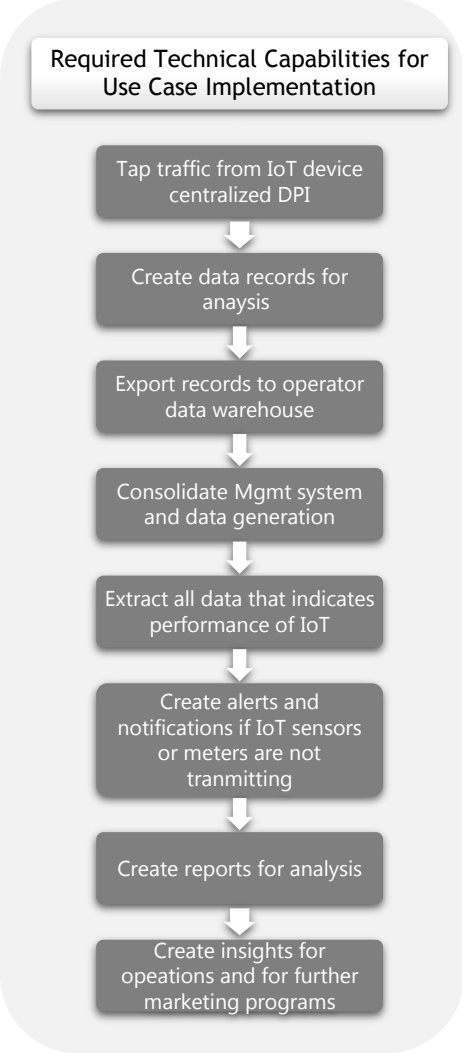
Use Case#1 Managing and Monitoring the Internet of Things (IoT)

Business Impact

Make Money	Save Money	Increased Customer Satisfaction	Increase Customer Base	Decrease Churn	Strengthen Brand Name

Emerging Market Opportunity

Many countries view IoT as a critical part of running sustainable cities through smart grids and data management. SIM-enabled connected devices such as IoT sensors are expected to exceed mobile phones as the **largest category of connected devices in 2018, growing at a 23% compound annual growth rate from 2015 to 2021**, according to the Q1/2016 Ericsson Mobility Report[9]. Utility companies know they can monitor water systems, check air quality and manage waste with IoT connected devices and management platforms. According to a recent McKinsey Global Institute report **40% of the value potential of IoT resides in the developing world**. Some industry leaders believe emerging markets could lead in certain areas of IoT due to the greenfield opportunities. The burgeoning IoT market is creating an abundance of opportunities for shrewd operators.



Operator Strategy

Leading operators understand that the opportunity for IoT goes way beyond basic connectivity. Operators that can climb up the value chain by offering differentiated quality-based services can reap the rewards of added value. These solutions may be around operations and management

[9] https://www.ericsson.com/mobility-report

platforms, but may also include specific vertical solutions. Many of these value-added solutions will require network-based device identification, access control and device-level SLAs.

As such, providing visibility into IoT device traffic, analyzing usage, following trends and detecting anomalies are all means by which operators can add value to the IoT ecosystem. For example, an operator can easily identify if a particular sensor or a meter is not transmitting as it should. In addition, data scientists need rich data source to analyze and model the behavior and impact of IoT.

Use Case#2 Security as a Service (Consumer)

Business Impact

Make Money	Save Money	Increased Customer Satisfaction	Increase Customer Base	Decrease Churn	Strengthen Brand Name

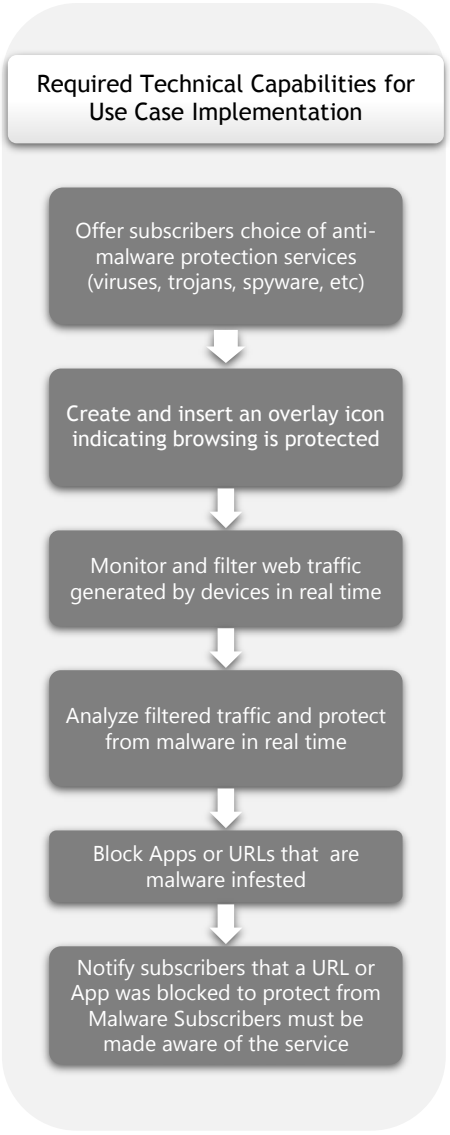
Emerging Market Opportunity

As connectivity has become commoditized, operators are looking to offer value-added services for generating revenue on top of their standard consumer packages. Mobile Internet Security is just such an opportunity. Protection of consumer mobile devices against threats like viruses and malware, parental control of a minor's device and blocking of unwanted ads are features offered by leading operators as part of a Security as a Service offering. Operators have a golden opportunity to increase average revenue per unit by offering security as a service for customers' peace of mind.

Operator Strategy

Security as a Service enables an operator to deliver a valuable network-based security offering to every individual customer. This type of solution negates the need for device-based software and endless updates.

Anti-malware and anti-virus services are important to all mobile customers. In addition, a "Safe Surfing" option that protects subscribers against unwanted content and unsolicited adverts. These ads, often video, can consume large portion of quota data and can expose subscribers to unnecessary security risks



in the form of "malvertising". With Security as a Service offering, operators can generate new recurring revenue, and strengthen customer loyalty. Of operators who offer Security as a Service, **60% charge a premium for it at prices ranging from $1 to $5 per month** per line. **Full ROI in 5-7 months can be achieved and the 2.4% annual churn savings may cover the cost of deployment alone**[10].

Vodafone Global[11] has taken a very proactive approach on securing the internet for their subscribers and have already launched Security as a Service for consumers in Portugal, Italy, Germany, Romania, Ireland, Greece, Spain, Turkey and Albania.

Conclusion

Mobile data customers in emerging markets have their own unique set of characteristics and preferences. Combining these tendencies with best practices established in mature markets, it becomes clear that there is real and present opportunity for operators in emerging markets to further monetize mobile data.

The use cases detailed in this paper highlight opportunities that operators are currently pursuing in order to increase revenue, improve customer satisfaction and drive loyalty. The functionality required to implement these use cases, such as policy control, charging functions and granular network, application and subscriber analytics may very well be installed in many operator networks.

Operators that move quickly to take advantage of these opportunities may well benefit from the first mover advantage and retain it for some time to come.

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We believe real expert analysis is about experience, insight and in-depth knowledge. That is what we share.

[10] Allot MobileTrends H1/2015
[11] https://securenet.vodafone.com/