Monetizing Subscriber Behavior
White Paper

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1. Market Overview

The cell phone is the most commonly owned and used information device in the world today. There are more than five billion cell phones in use worldwide. Wireless subscriptions exceed the total number of televisions, personal computers and landline telephones combined. Because of this dominance, the cell phone is becoming the focal point for all information access and sharing. Based on this fact, one would assume that the Cellular Network Operator is the center of the information universe, however, this is not the case.

Global Information Device Subscribers (in Billions)

Legend: Television, PC, Landline, Mobile
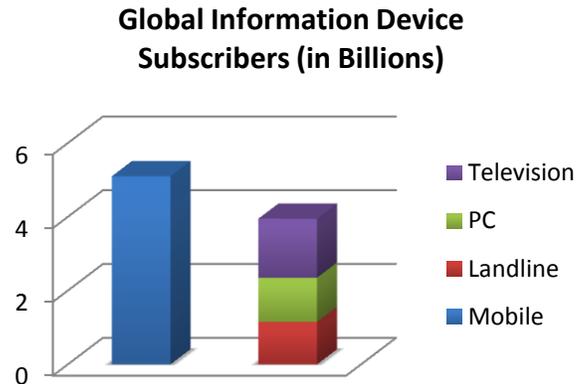
2. Who are the players in the mobile multimedia ecosystem?

The wireless network operator /carrier is the funnel for all of the information flow. Every bit of information must traverse the carrier network, beginning with or ending at the mobile antennae. In the current market, however, other members of the ecosystem own the subscriber mindshare. These members include but are not limited to companies such as Google, Facebook, Amazon and Twitter.

Subscribers view social network sites, news and key retailers as the value that they extract from the Internet. They can interact with existing friends, make new friends, access current events, or express themselves as consumers. At times all of these events come together in the same site such as Foursquare, though typically, multiple sites are used. The information on these sites is accessible from multiple sources and multiple providers. For example, you can access your Facebook account via your wireless carrier, broadband provider, internet café, or your local library or office network.

Although the methods are different, the information is the same. The user's allegiance is drawn to the content provider/manager, not to the service provider. Although the user may feel allied with the Web 2.0 provider, this provider is the easiest to replace. In 2008, MySpace had more than 2.5 times the

number of page views as Facebook. In 2010, Facebook had 2.7 times more page views than MySpace. During that period, MySpace traffic declined by 30%, while Facebook traffic increased over 450%. Since the only investment the user makes is time, it is very possible that Facebook's dominance could be replaced if a more attractive site is developed.

3. Value the Carrier Provides

The carriers have the opposite dynamic. With today's network concepts, carriers cannot be replaced without years of planning and billions of dollars in investment. In order to build a wireless network, first spectrum must be purchased from the local government, which can cost billions. Then billions of dollars must be spent for upfront investment and for continual network upgrades. In 2010, carriers in the United States spent over $30 billion each, just to keep their networks current.

Content cannot be delivered without a carrier. The carrier is vital to each member of the information ecosystem. The carrier network provides subscribers access to the information services, regardless of the information provider. At present, the Web 2.0 providers cannot exist without the network operators. Based on this dynamic, the carrier should have a higher position in the information ecosystem. The carrier owns the ultimate connection to the subscriber, the business relationship. The carrier has the ability to model a subscriber's behavior based on the sites the subscribers access.

4. Carrier Challenges

As wireless services become the leading delivery method for news, entertainment and general communication, new challenges arise. High market penetration has led to price pressures that have reduced the average revenue per user (ARPU) for most carriers.

Voice services have led that downward pressure. With subscribers having multiple accounts, and penetration rates rising above 100% in some markets, consumers have become more focused on price. Carriers commonly consider two options:

1. Reduce prices to maintain customers and attract new subscribers.

2. Improve services with unique value propositions with higher rates that consumers are willing to pay (e.g. free on-net calls, unlimited family plans, private voice; VPNs.)

There is a third option. Find new sources of revenue, while increasing subscriber services and maintaining the current rate structure.

The third option requires the carriers to partner with and/or enable the content providers to offer their services in a controlled fashion. The carriers can work with the content providers to offer tailored information services for subscribers. These information services are sponsored by advertising, providing the carrier with a new source of revenue, while allowing them to improve the user experience. This in turn results in reduced churn rates and increased ARPU.

Carriers have partnered with Google, Apple, and Blackberry to provide smartphone options to subscribers. Since carriers require data plans with smartphones, this has resulted in a dramatic increase in ARPU for data services. Unfortunately, this has not been enough to offset the reduction in voice ARPU, resulting in an overall reduction in ARPU.
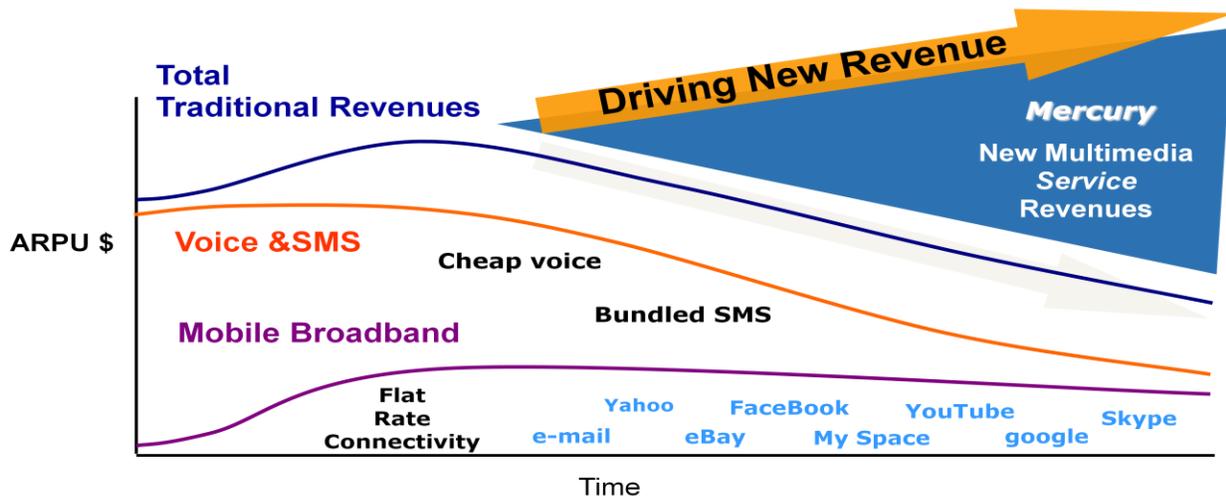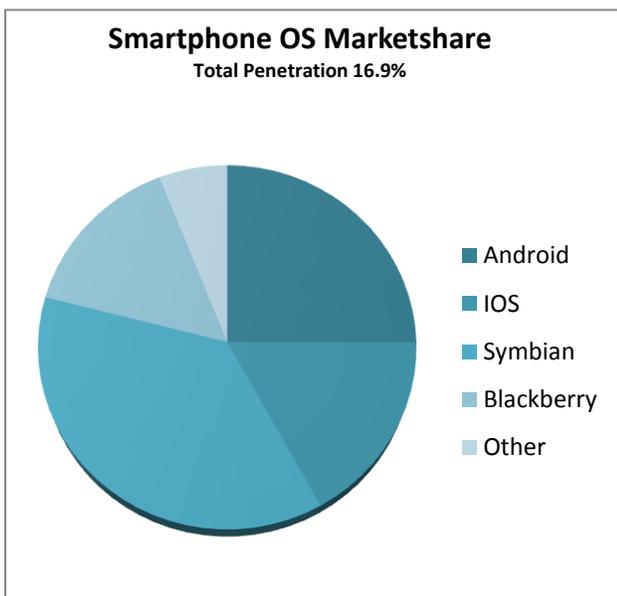
5. Revenue Paths

The App marketplace has been a tremendous revenue source for Apple and Google, but it has not resulted in additional revenues for carriers. In fact, it has pulled the carrier further away from the new potential source of revenue, advertisers. Carriers need to reposition network assets to show the true value of their network to content providers and advertisers.

The chart below shows how services delivered through the carrier network are superior to that of the App model.

	Mobile Application	Carrier Network
Phone Type	Limited to single OS	All phones in network
User Data	Unprotected/Vulnerable	Protected
Subscriber Access	Only who download the App	All Subscribers
Access Time	During App Use	7x24x365

In order to access content through a mobile App, a subscriber must first locate the App, configure the App, and then continue to use the App (26% of all Apps are never opened a second time.) t In contrast, he carrier has access to 100% of subscribers all of the time. Information can be delivered to users regardless of their phone, operating system, or App usage.

Feature phones and non-3G phones still dominate the user market. In 2010, 3G penetration worldwide was only 14% and Smartphone penetration was 16.9%. Services designed to include all users at all levels will drive much higher revenue from content providers and advertisers. By utilizing existing delivery mechanisms in the carrier network, a much wider net can be cast. For example, an iPhone App in the US will address only 8-10% of a carrier's subscribers, even if 100% of iPhone users download the App. A potential advertiser for a major brand would be much more interested in a delivery methodology that would be able to reach 100% of the subscriber base.

Smartphone OS Marketshare
Total Penetration 16.9%

- Android
- IOS
- Symbian
- Blackberry
- Other

6. Carrier Opportunities

Mobile operators around the world have been tirelessly searching for new sources of revenue streams. Voice and messaging plans have been commoditized and fixed rate data plans are enabling Over-The-Top (OTT) content providers to monetize those data pipes. As competition has reached a critical mass, subscriber ARPU from voice and data continues on a downward trend. Keeping the operators relevant within their own ecosystem is critical if the downward ARPU trend is to be reversed. The mobile operator's key to survival, growth and achieving ever-important relevance means inserting themselves into the value chain far beyond being a simple provider of voice and data plans. Mobile operators will need to evolve and expand service offerings by delivering and enabling all forms of mobile content, from advertising to entertainment to applications.

Over the years, the operators have invested billions into their networks giving them the unique advantage of delivering a wide array of revenue generating services and applications. What most operators currently lack is an end-to-end solution that will easily integrate into the existing ecosystem and allow operators the flexibility, scalability and functionality to tap into the billions of dollars of revenue currently being realized by the delivery of services from third-party content providers.

Beyond their network infrastructure, mobile operators hold another significant competitive advantage: their existing subscriber base. Mobile advertisers are continually looking for the most effective methods to deliver their message with speed, relevance and most importantly, a targeted and interested consumer. Through the combined use of their network, subscriber base and Mercury, a revenue generating, mobile multimedia content delivery platform from NewNet Communication Technologies, operators can enjoy incremental revenue growth, increased value add for their subscribers and achieve the much needed relevance within their own ecosystems.

7. Growth of A2P MMS

Industry research is being published on a daily basis –which supports the importance that mobile communication is playing in the daily life of billions of subscribers around the world. The natural evolution is to advertise and sell to subscribers through a media that is always on and always with us.

A2P MMS has become a highly effective method for delivering rich content with an interactive experience. Subscribers, operators and advertisers all have seen the value that these campaigns can yield. Advertisers in some global markets have seen response rates as high as 8%, more than double that of traditional print ads. Operators are seeing a steady climb in the adoption of MMS as more content is made available to their subscriber base. Subscribers have benefited from a more fulfilling mobile experience. Many operators are putting a major focus on local advertising, with the intent of delivering content that is more relevant to the subscriber and providing the advertiser with a considerably more focused message. Companies such as Groupon have exploding business models based on this very concept.

8. Evolution of MMS

SMS is still the overwhelming mobile delivery method for advertising. An evolution to MMS promises a wealth of options for advertising and content delivery that will have an impact far beyond typical SMS delivery experience. The large majority of SMS campaigns are originated by media companies such as TV and radio shows. These campaigns, many of which use plain text, can be enhanced and migrated to MMS using the Mercury SMS2MMS module. The result will allow for an interactive experience that can include rewards, call to action and embedded advertising.

Further fueling the growth of MMS and A2P traffic is the global social networking boom. The Mercury Messaging, Advertising, Content Delivery and Viral tracking capabilities will allow feature phone users to have similar experiences as Smartphone users. Displaying pictures, downloading audio clips, streaming video clips, graphical news and sports updates, and all forms of real time messaging are just a few capabilities that are now available to feature phone users, all of which can be monetized by the mobile operator.

9. Determining Advertising Campaign Effectiveness

Results are the key! From creating brand awareness to selling more products, determining the effectiveness of an ad campaign is measured by the results of the campaign. How do advertisers track the results? Have they targeted the right audience? Has the message been well received? Has the

campaign achieved its desired goal? What changes do we need to make in order for future campaigns to be more effective? Advertisers and marketers have, over the years, used many techniques and measurements to gauge the effectiveness of their campaigns and how to improve targeting a desired demographic. The Mercury ViralTrack and DataTrack modules provide a mobile operator and advertisers with the ability to track the viral nature and the effectiveness of campaigns.

Envision a campaign that is sent to 100,000 subscribers, and within minutes, knowing which of those subscribers viewed, forwarded and responded to the campaign, identify the viral networks that were formed based on the campaign, and then using that data to better target future campaigns. This advanced; industry-leading technology is at the heart of the operator's ability to monetize subscriber behavior.

10. Tracking the Viral Nature of Campaigns

Whatever the content may happen to be, video clips, music, comedy, news or advertising, Viral is becoming norm. Today's communication technologies and networks lend themselves to the efficient distribution of content from peer to peer. Social networking, SMS, IM and live video means that intriguing content can have near real-time dissemination. Advertisers are combining exceptionally creative ads and content distribution with the hope of being the next Viral hit.

Understanding the Viral nature of a campaign means understanding the behaviors of subscribers with respect to a particular campaign. An accurate and efficient understanding of these behaviors means that operators can use that information with future campaigns to target a more relevant audience. Applying past subscriber behavior to future campaigns has tremendous value to both advertisers and recipients. Imagine if Super Bowl advertisers knew what the Monday morning water cooler buzz was going to be even before the game is played. Imagine a base of subscribers waiting for the next "cool" and relevant ad or content to be delivered.

The Mercury ViralTrack and DataTrack components provide the necessary tools, reporting and analytics that allow operators and content providers this type of insight into what is relevant to a particular subscriber. Opt-in capabilities allows -subscriber privacy concerns to be addressed by the subscriber.

11. Consumers and Influencers

The technical components of a well-tracked campaign enabled by the Mercury ViralTrack module include industry-leading technology and patented database optimization for reporting and analytics. The key analytical components associated with a campaign are the consumers and the influencers. Consumers are primary or secondary recipients of a campaign, while influencers are consumers who receive and then forward to one or more secondary recipients. The primary recipients are the subscribers who are the initial target of the campaign. Tracking their subscribers' behavior enables the operator and the advertiser to create personal viral networks that expand well beyond the initial campaign targets. This data can be used to refine the targets of future campaigns and reward top influencers of a campaign.

Mercury ViralTrack uses consumers and influencers to create the viral statistics for each campaign. Capturing the detailed behavior of the subscribers that opt-in results in substantial improvements for all future campaigns.

12.   Identifying the Value of Viral Data for Operators

ViralTrack is an integral component of the complete end-to-end mobile multimedia platform of NewNet known as Mercury. Whether implemented as a stand-alone application that is easily integrated into existing ecosystems or as part of a complete revenue generating mobile multimedia solution, ViralTrack enables the monetization of subscriber behaviors. Content providers, through the use of MMS delivered campaigns, have a unique view into the subscriber adoption and subsequent actions that are driven by these campaigns.

The following are just a few of the key value propositions that Mercury ViralTrack delivers:

- Detailed tracking analytics for each campaign
- Creation of viral networks for each subscriber
- Specific targeting based on past behavior
- Increased value for future campaigns
- Delivery of relevant content to subscriber base
- Increased revenue opportunities utilizing subscriber behavior

ViralTrack and the Mercury platform have proven results with mobile operators in Europe, Africa and South East Asia. These operators have seen the following successes:

- 900% increase in service adoption
- 60% improvement for campaign response rate
- 37% increase in subscriber growth
- Increases in ROI based on unlimited TPS license model

13. Strategies for Monetizing Subscriber Behavior

a. Targeted Advertising Campaigns

The targeting of ad campaigns to interested consumers, who in turn act as influencers by forwarding the campaign to friends and associates, is a key aspect to monetizing behavior. Key industry research supports this position. In April of 2010 McKinsey identified "word of mouth" referrals as a primary factor affecting up to 50% of purchasing decisions. Further, mobile digital communications now drives a "one- to-many" word of mouth.

Additionally McKinsey noted in March of 2010 that the gathering and analysis of digital data is one of the four key elements to successful digital marketing. These key industry factors regarding the viral spreading of campaigns will continue to drive significant growth in mobile ad spending. Merrill Lynch is forecasting the worldwide mobile ad spend to increase to USD20 Billion in 2011 from USD 11.4 Billion in 2010.

Mercury ViralTrack enables operators to gather, analyze and effectively use this data for accurate targeting for future campaigns. Subscribers who opt-in build the initial base for the campaign and through the viral distribution by the initial base; additional targets for future campaigns can be identified. The operator creates a win-win scenario. The subscriber experience is enhanced because they receive campaigns that are of genuine interest, while secondary recipients of the campaign are receiving trusted valuable referrals. The operators enjoy increased revenue from multiple sources. Increases in messaging due to the viral distribution can result in revenue increases by as much as 100% (Note ROI model #1 below.) Current campaign behavior also results in increased revenues to the operator. Through the use of viral analytics the operator can continually improve the quality of

subscriber targets for any given campaign. Advertisers and content providers are constantly looking for ways to deliver an effective message to interested consumers. ViralTrack provides the operator with all the data necessary to identify the influencers and consumers for a single campaign or group of campaigns. The operator, not the advertisers and content providers owns the data. This allows the operator to maintain an extremely relevant position because the advertisers and content providers are achieving their goals.

ROI Model #1

ViralTrack usage per campaign

Wholesale Price for MMS	0.325	USD	
Wholesale Price for viral MMS	0.425	USD	
total number of subscribers	10,000,000	subs	
number of opt-in subscribers	1,000,000	subs	
distribution list ratio to total subs	1%		
relative number PO	20%	% subs forwarding in distro. list	
relative number SO	2%	% secondary subs forwarding / total subs	
average private network depth	2		
average private network size	2		
Initial distribution list size	100,000	subs	+
Total number PO	20,000	subs	
Total number SR	40,000	subs	+
Total number SO	20,000	subs	
Total number of transactions by SO	40,000	subs	+
Total MMS transactions	180,000		
without viral track	32,500	USD	
with viral track	66,500	USD	
% increase in revenue	105%		
$ increase in revenue	**34,000**	USD	

ViralTrack ROI per year

Number of campaigns per month	4
Total number of campaigns per year	48
Total MMS transactions per year	8,640,000
Total revenue from ad campaigns	3,192,000 USD
Increased revenue due to ViralTrack	**1,632,000** USD

14. Increase MMS Adoption and Transactions

Smart phones account for a mere 10% of the approximate five billion mobile subscribers, which leaves the majority of the worlds mobile subscriber base without the "iPhone, Android or Blackberry" experience. This majority has typically utilized voice and SMS services. MMS capabilities allow for a richer and more satisfying experience. MMS is delivering the Smartphone experience to subscribers around the world through the delivery of music, video clips, advertising, gaming and other user interactive applications. The key differentiator is that through Mercury, operators not only can deliver the message but can also dictate its contents.

As the operator offers these new feature rich services, they will monetize the resulting increase and adoption of MMS delivery. One Mercury platform operator has seen MMS usage increase from 3% to 27% within the last 18 months. The revenue impact is clear; the operator is able to monetize the subscriber behavior by realizing revenues from increased MMS usage, revenue sharing, and advertising and applications. ROI model #2 below, illustrates the significance of increased MMS usage. The numbers are compelling and definitive in their message; the operators have the network and subscribers to realize these ROI models when combined with the Mercury platform and ViralTrack module.

ROI Model #2

ViralTrack usage per campaign

Wholesale Price for MMS	0.325	USD
Wholesale Price for viral MMS	0.425	USD
total number of subscribers	35,000,000	subs
number of opt-in subscribers	5,000,000	subs
distribution list ratio to total subs	8%	
relative number PO	20%	% subs forwarding in distro. list
relative number SO	2%	% secondary subs forwarding / total subs
average private network depth	2	
average private network size	2	
Initial distribution list size	2,800,000	subs +
Total number PO	560,000	subs
Total number SR	1,120,000	subs +
Total number SO	100,000	subs
Total number of transactions by SO	200,000	subs +
Total MMS transactions	4,120,000	
without viral track	910,000	USD
with viral track	1,471,000	USD
% increase in revenue	62%	
$ increase in revenue	**561,000**	USD

ViralTrack ROI per year

Number of campaigns per month	4	
Total number of campaigns per year	48	
Total MMS transactions per year	197,760,000	
Total revenue from ad campaigns	70,608,000	USD
Increased revenue due to ViralTrack	**26,928,000**	USD

15. Conclusions

As the convergence of mobile communications and delivery of digital media continues to evolve so does the operators' need to secure a highly relevant and profitable position in the value chain. The selection and application of relevant technologies to address business problems has become the standard. High performance content creation, delivery, tracking and analytics as delivered by Mercury and ViralTrack are the right choice for operators who have recognized the need to evolve their business models.

Operators around the globe are just beginning to realize the ROI's that are possible by understanding their subscriber base and delivering content to them that is not only meaningful, but truly increases their quality of experience.

Mercury, NewNet's unique, high performance mobile multimedia platform enables operators to rapidly develop, deploy and track media rich applications across their entire subscriber base. The platform's messaging and streaming content capability complements and extends NewNet's product offering to address the evolving needs of mobile operators.

For more information on how to tap into the vast potential of your subscribers, visit us at www.newnet.com

16. About NewNet Communication Technologies

NewNet Communication Technologies, LLC is a leading provider of innovative solutions for next generation mobile and fixed line networks. NewNet enables global telecom operators and equipment manufacturers to rapidly develop and deploy cutting edge, revenue-generating applications that deliver feature-rich, value added services. Recognized as a trusted leader in the carrier applications market for over 20 years, NewNet has been synonymous with telecom product excellence and development expertise. The company is committed to providing unparalleled service to its customers. With installations in major carrier networks in over 70 countries, NewNet's product offerings include: Mercury, the industry's most complete purpose-built mobile multimedia content delivery platform; TraxcomSecure® electronic transaction processing solutions which deliver services such as mobile payments, e-banking, and e-commerce; and the Total Control PDSN platform which provides economic delivery of premium mobile data services in CDMA networks. Other products include SS7, the world's first standards-based signaling platform and SMSC, a short message service center which has been deployed in more than 200 wireless networks worldwide. The company is headquartered in the USA, and has engineering teams located in Turkey, Romania and USA, research and development centers located in India, and multiple sales and support teams located around the world. For more information, visit www.newnet.com.