



Growth Market Opportunities

Capturing Revenue in the World's Fastest Growing Mobile Markets

About Openwave

Openwave Systems Inc. (Nasdaq: OPWV) is a global software innovator delivering context-aware mediation and messaging solutions that enable communication service providers and the broader ecosystem to create and deliver smarter services. Building on its mobile data heritage, Openwave mobilizes the internet with predictive solutions based on real-time analytics that mediate between all the different ecosystem elements, enhancing every mode of IP traffic. The result is a 360-degree view across the user, network, device and services that enables our customers to proactively optimize network resources, launch smart mobile services quickly, and provide a contextually aware user experience. Openwave is a global company headquartered in Redwood City, California.

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Table of Contents

Introduction.....	4
Trends	4
The First Wave - <i>The Mobile Revolution</i>	4
Economic & Mobile Growth	5
Types of Phones & Networks.....	5
Billing Preferences.....	6
The Second Wave – <i>What’s Coming After Voice?</i>	6
The Challenge – <i>What Operators Need</i>.....	8
Scalability.....	8
Monetization	8
Brand Recognition	9
The Solution – <i>What’s Next</i>.....	10
Summary.....	11

Growth Market Opportunities

Introduction

Markets in Africa, South America, Pacific Asia, and India – as diverse from each other as they are within their own borders – share a common future: they are all poised to explode with opportunities in mobile data usage. Remarkably, the paths being forged in these emerging markets – now considered to be the world’s major industry growth markets over the next five years – are taking shape in entirely different ways than their western counterparts.

As mobile phones migrate away from users’ ears to in front of their faces, and feature phones become both more affordable and more technologically advanced, a second, much larger wave of demand for mobile data services is about to flood these growth markets.

Trends

Over the course of a decade, mature markets with higher capital volume in the U.S, Europe, and developed Asia have – in relatively short order – carved out their own characteristic paths of expansion.

In growth markets, a number of factors including population, resources, culture, communications infrastructure, market penetration, and low saturation have created a wave in popularity of mobile voice and text communications. With the onset of improved technology, a vacuum of need is emerging, creating a second wave of growth for operators to monetize the unique, timely convergence of demand and opportunity.

To date, operators in growth market regions – where users practice limited spending of \$5-\$10 per month – are seeing a clear increase in mobile phone usage. This is due largely to an increase in the number of local operators in territories that were initially ignored as ‘unprofitable’ by western operators. Small, local operators forged new business models in these territories, reaping incremental profits from the large volume of subscribers within their markets. Today, some of these operators are poised to become among the world’s largest group of operators, showing operating margins in line with their western counterparts despite much lower per-customer spending in these markets.

As data services continue to develop along with the expanded capabilities of mobile feature phones, vertical applications based on markets such as agriculture, education, family health, business, and money transfer are fast becoming critical economic tools in areas with historically limited communications infrastructures.

The First Wave - *The Mobile Revolution*

The one thing growth markets have in common is they are all experiencing a mobile revolution with massive and rapid growth based primarily on voice usage. The evolution that occurred in the US and Europe from long-established land lines and PC infrastructures to mobile communication has been leapfrogged. Instead of a steady ramp-up from fixed hardware and over-the-wire communications, these growth markets have gone directly to mobile technology.

This represents a “sped up” technological advance of more than 100 as years compared to western cultures. When mobile telephony comes to growth markets, it is literally revolutionary. The lack of legacy telecoms infrastructure ensures this, and in many areas, the arrival of mobile technology represents the first infrastructure of *any* sort, including roads, electricity, and sometimes even running water. As a result, there is no prior *dependence* on land lines, TVs, or

PCs. Everything – family health, government information, health, and other commerce – is potentially placed in the palm of the user’s hand. This has not been an evolution. The arrival of communications, where before there were none, is a startling change, bringing with it tremendous effects on both local business and family life.

In these regions, mobile penetration will remain far ahead of PC usage for the foreseeable future. For example, across Africa it is estimated that 5% of the population has access to a PC, but almost 50% now have access to a mobile handset. Users in these markets will always go first to the phone. As the price of mobile phones comes down – while capabilities go up – usage will continue to increase exponentially (see Figure 1).

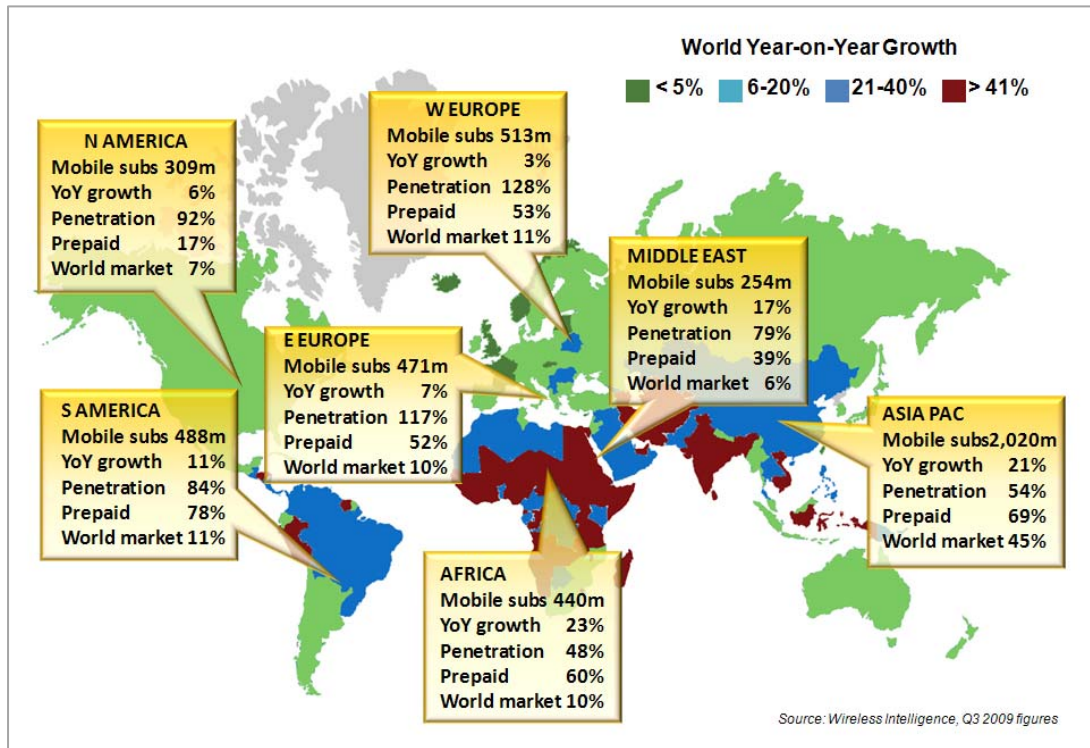


Figure 1: Rapid Growth in Mobile Penetration

Economic and Mobile Growth

The same factors that for centuries have relegated many countries to limited economic status – natural resources, size, GDP, politics, and lack of infrastructure – now put them in a very positive light in terms of economic fertility and positioning. Going forward, unbounded by unwieldy hardware and analog infrastructure, wireless technology is comparatively inexpensive and easily installed.

Types of Phones and Networks

In many growth markets, mobile phones are the populace’s sole means of communication and business facilitation. In others, it is rapidly *becoming* the preferred means. As mobile units become more affordable and accessible, phones as computing platforms will be the standard.

Far more rapidly than it did a decade ago in mature markets, and with incredible stealth, the mobile phone in growth market nations is morphing from a luxury few could afford to a commodity to which most want access.

Billing Preferences

As many as 99% of users in growth markets are pre-pay, as compared to, for example, the U.S., where only 30% are pre-pay users. Average monthly revenue is \$5-10 per user. There is a clear preference for no-commitment, pre-pay usage in these markets. There is a clear requirement for any advanced services to be available and attractive to the pre-pay user in these markets.

The Second Wave – *What's Coming After Voice?*

As a result of many factors, mobile bandwidth consumption – already on the rise – is expected to skyrocket worldwide, posing a significant challenge to operators who need to reduce the cost associated with network expansion.

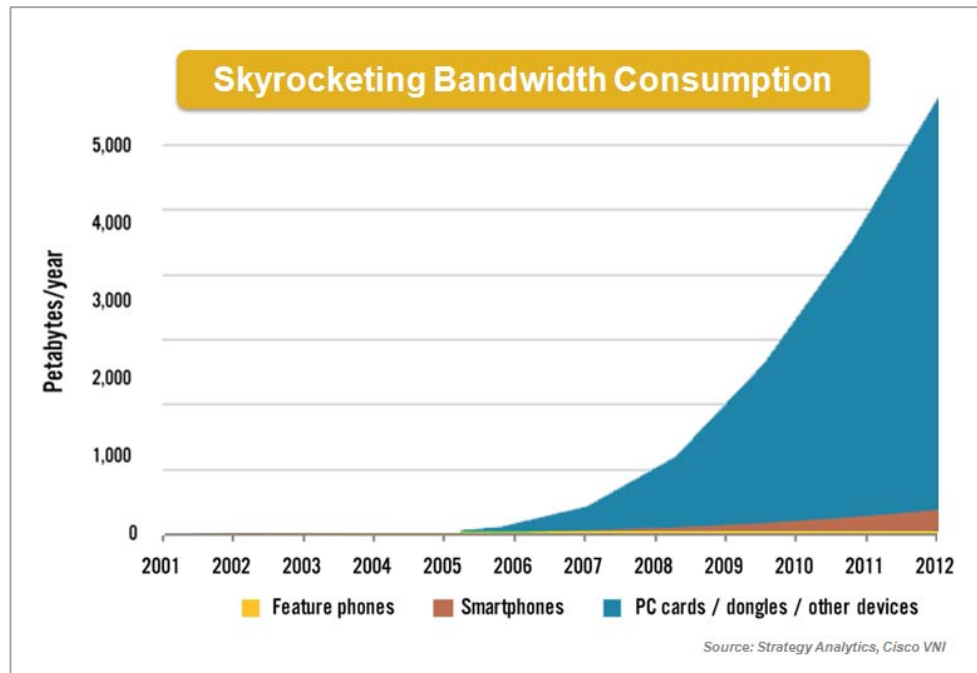


Figure 2: "Mobile Data Tsunami" hits the world's developed markets

Mature markets are already experiencing the effects of this "data tsunami" as shown in Figure 2. Mobile data demand, driven by smartphones and mobile laptops, is generating a predicament for operators in developed markets as they try to manage the increased capacity while at the same time find new ways of monetizing this data traffic.

For operators in growth markets, data traffic, while not yet at "tsunami levels," is growing extremely rapidly. Figure 3 shows compound growth rates of at least 100% to more than 200% across these markets. The numbers are still small, but the rate of growth is huge, and in some cases quite dramatic: in East Africa alone, growth in mobile broadband is estimated at 800% year over year. (*Informa*, 2009).

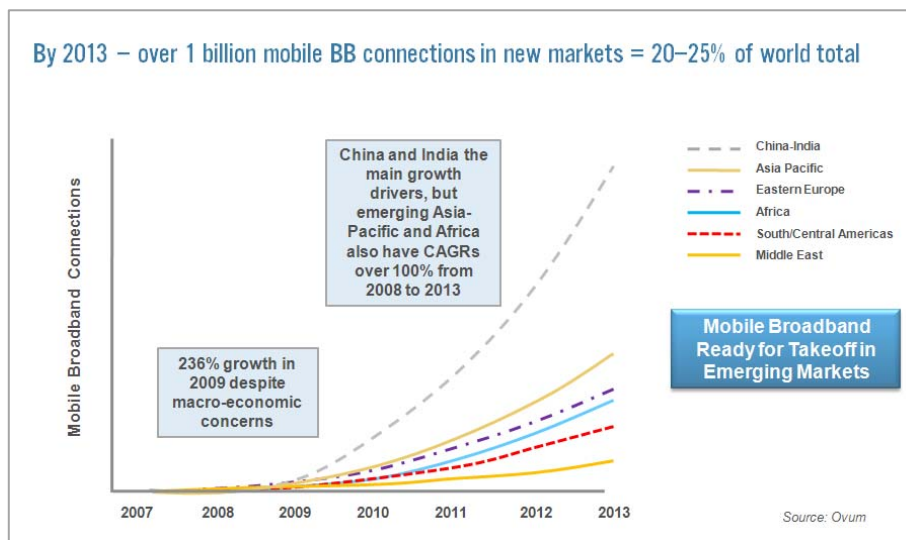


Figure 3: “Data Tsunami” starts to build in world’s newer markets

At the same time, new, innovative data applications are becoming popular, further contributing to the growth in mobile data. As stated previously, handsets are literally moving from the ear to in front of the face.

Initial data applications being widely adopted in these growth markets are mostly highly targeted niche applications serving very specific purposes. These are *vertical applications*. Examples include SMS applications used to access agricultural information (e.g., Farmers’ Friend apps), mobile money transfer (more than 140 such services are now being used), and health and education applications.

While not “the Internet,” this type of “network” of applications and services will ultimately lead to the adoption of an open internet that users will access via mobile devices. Mobile handsets are more likely to be fully utilized as the sole means of email, browsing, calendar, calculator, entertainment and media applications in growth markets than in developed markets simply because people in developed markets have other options – TV, magazines, PCs, laptops, iPods etc.

Because most of these options are difficult or very expensive to acquire, mobile handsets are embraced there as the mini computing platforms they were originally meant to be. Simply stated: when feature applications are readily available on the mobile handset, they will most likely get used.

All of this will certainly take time to penetrate, and issues such as low literacy need to be addressed. However, we have already seen that the right services that meet a point of need enjoy extremely widespread acceptance.

Operators who adapt and position themselves to monetize this global shift in personal and business communication usage will ride the wave of economic upturn. By leveraging the convergence of technology and cultural economic opportunity, operators are focused on realizing profits from a large volume of low-revenue customers. “Low-value customers” become profitable.

The second wave of the mobile revolution – powered by the upswell of an unprecedented mobile data tsunami – is upon us.

The Challenge – *What Operators Need*

The Questions

The challenges facing operators in growth markets who are deploying a “second wave” mobile internet service are threefold:

- 1) With the high ramp-up of mobile data, how do I **scale** my services to meet the demand without adding network capacity and increasing my costs? How do I extract maximum leverage from my existing investments in both network and handsets?
- 2) How do I **monetize** these new users? How do I get value from these users? In particular how do I attract and monetize casual prepay users who by their nature are unwilling to enter any long term billing relationship?
- 3) How do I establish and maintain **brand recognition**? How do we differentiate ourselves? How do we reduce churn where currently customers are jumping from network to network? This is a particular area of opportunity as in many growth markets today there exists a brand vacuum.

Likely Answers

Scalability

With consumption of bandwidth projected to grow at a nearly crisis rate, operators need to make the most of their existing bandwidth - both over-the-air and backhaul bandwidth. This calls for state-of-the-art compression and caching technologies. This way, operators are not paying for additional capacity before it becomes an absolute requirement. Their only capital outlay is for bandwidth on which they can make a profit. Translating from technology to the bottom line represents a huge break in savings on the back end.

Monetization

Monetization of the mobile web is made possible primarily by offering a better user experience - a solution that is simple, appealing, affordable, and fun. Monetizing the mobile web necessitates providing *a better user experience*.

For users, this means products and services that work every time and that do not require a lot of fuss, know-how, or commitment. It means having universal access to information – literally – in the palm of one’s hand and at a very affordable price with easy “no commitment” sign-up options.

For operators, it means profitability that is realized on the back end, where revenue is born not of increased pricing, but of savings achieved (see Figure 4).

Revenue opportunities in these markets are incremental – *capitalizing* on this opportunity is monetization. While per-customer revenue might be marginal, it is the sheer volume of these small gains that bolsters profitability.

End User

- Great user experience
- Fast and responsive
- Device agnostic - but capability aware
- Easy access to relevant content
- Ease of payment and competitively priced

Operator

- Deliver any web content to any handset
- Low TCO / efficient use of existing resources
- Subscriber reach + clear ROI model
- Easy and quick to deploy
- Small footprint, grows as you grow



Figure 4: Requirements for a Market Differentiated Mobile Internet Service

The key to differentiation is to provide an internet user experience that surpasses both the user's expectation and the competition's offering. Put simply, any web site and any web service must work on any phone, any time, any place. No errors, no delays, no disappointments.

Monetization is achieved by attracting pay-as-you-go (PAYG) subscribers to this mobile internet browsing service by offering an "internet oasis" that can be timed for as little as one hour at a cost just a few cents. Experience shows that most internet browsing done away from a fixed connection is "casual usage." People are more willing to sign up for an hour or a day of browsing than for a year, even if the yearly plan works out to be much cheaper overall. Marketing campaigns can be run to promote these temporary plans via SMS or involving, for example, a certain amount of free access to encourage initial usage. Openwave has seen operators sign up 20,000 users every day to no-commitment, low-cost data plans when marketed correctly.

Brand Recognition

In many growth markets, there is no established brand in the communications space. For example, there is no Cox or Virgin laying fiber optic cable. There is no MSN, AOL, or Yahoo controlling broadband. There is literally a brand vacuum waiting to be filled.

As a result, there is vast opportunity for operators to take on a role that is much larger than just voice communications. The mobile operator has the opportunity to become the default ISP – the mobile ISP – in these regions, establishing a brand value that extends beyond voice to data and internet services including entertainment, media, education, etc. as well as "surfing".

This brand vacuum is an opportunity unique to growth markets and – by nature – a meaningful and effective churn reduction tool. The more of your services consumed, the less likely consumers are to churn.

The Solution – *What's Next?*

Openwave enables operators to monetize the mobile internet by providing a suite of tools that work together to create and support mobile internet infrastructure.

Openwave's Mobile Internet **ReadySet** solution leverages proven Openwave products, providing a powerful combination of technology that result in operator savings and *a superior user experience*:



The Mobile Internet ReadySet enables operators in growing/emerging markets to quickly launch and monetize mobile internet data services.

“Any Website, Any Phone”

OpenWeb provides content adaptation that converts standard open internet websites into highly compressed, functional mobile phone-compliant WAP2 pages. OpenWeb allows consumers to use their existing phones unchanged. There is no need to install any applications or new software, or modify individual websites.

More Speed, Less Bandwidth

Accelerator provides a series of content compression and caching algorithms that improves access time and significantly reduces the volume of data per transaction going both over the air to the user, and being backhauled to the Internet.

Monetize the Experience

Passport gives operators the capability to intelligently intercept subscriber-initiated data transactions and offer targeted services that are relevant to the individual user. Passport enables “Pay As You Go” casual web browsing and is ideal for pre-pay subscribers.

A Next-Generation Mobile Internet Platform

Integra is the heart of Openwave's bundled internet solution, providing a low-cost, pre-packaged platform serving as the central point of control for all mobile internet services both now and in the future.

A Solution that Grows As You Grow

Mobile Internet ReadySet provides Openwave's most beneficial mobile internet products in one low-cost, high-availability, pre-packaged, small footprint bundle. Pre-set templates make for quick and easy deployment and start

up. ReadySet scales very easily. As your user base grows, simply add more low-cost hardware nodes. Similarly, as your users demand additional internet services, simply add them as plug-ins to the Integra platform.

Summary

Holding more than 100 U.S. patents for mobile and broadband technology, Openwave sets the bar high and is the leading innovator of software applications for over-the-air messaging.

Mobile Internet ReadySet, with proven superior technology and bundled affordability, is poised to facilitate an explosion of revenue opportunities for operators. ReadySet is implemented with precision, flexibility, and business acumen to meet – and exceed – operator needs and user expectations in the world's growing mobile data markets.

*Openwave is positioned to help operators establish themselves
in the world's fastest growing mobile internet markets.*

Visit www.openwave.com for more information how Openwave's **ReadySet** solution will empower your company in the future of emerging markets.

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