

Mobile applications: At the forefront of interactivity

Mobile Apps Scenario

- ◆ GSM operators must expect decreasing ARPU and increasing churn
- ◆ IMImobile provides content applications to the entire system
- ◆ VAS global market to rise to US \$ 48 billion by 2007 with data services
- ◆ Mobile specific TV is the next big development
- ◆ Inflight mobile applications are expected
- ◆ SMS is fifth channel for media advertising
- ◆ PKI will create mass market in e-commerce
- ◆ Dual market in India between urban and rural users



**Yossi Wellingstein, CEO
Celltick**

NEW DELHI - According to Yossi Wellingstein, CEO, Celltick, as revenue from voice services reach a plateau, operators are looking for new ways to increase the revenues derived from data services. The global market for value-added data services is predicted to grow to \$48 billion by 2007, but this will only materialise when the mass market adopts data services.



**S.S. Bhat, director, R&D
IMImobile**

However, operators aren't just looking to provide new applications — they want to make the user-experience easier. With Celltick's platform, operators gain a cost-efficient tool to promote their data products.

Celltick Technologies is the global

leader in idle-screen application and mobile interactive broadcast. Millions of users worldwide use the company's products, which allow mobile operators to deliver value-added service to the mass market simply and intuitively. The company is headquartered in London, has an R&D center in Israel and offices in China, India and Russia.

The company has representatives in India to support its customers. Hutchinson India's Hutch Alive service was launched in January 2003 and is the world's first personalized interactive broadcast service. Using Celltick Technologies' 'LiveScreen' product, content is sent simultaneously to mobile phones.

Hutch Alive users can choose to receive information free of charge on categories including news, cricket, entertainment, astrology and lifestyle. The content is displayed continuously and unobtrusively on handset screens without any form of an alert. Should users require more information, they need only to press a button and further information is transmitted by SMS, MMS, voice, WAP or even video.

According to the GSMA (Global Systems for Mobile



Vipul Kant Upadhyay, CEO and president, IAP Company Ltd.

Association), as Indian operators benefit from rapid growth, they will undoubtedly experience increased customer churn as consumers look for the best deal.

The ability to keep a consumer loyal will be based on the ability to deliver exciting and personalised data services and a seamless user experience.

Need to evolve!

S.S. Bhat, director, R&D, IMImobile, is of the view that to achieve that colossal dream of contributing to 40 percent of operators' revenue, we need to evolve. He pointed out that the evolution of technologies is a function of human thought and time. There has never been a change in human behavior as rapid and exciting as that of the communication revolution.

IMImobile provides mobile content applications to the entire mobile ecosystem. Some of the innovative solutions provided by IMImobile include: Java games, themes, images, MMS applications, photo albums, wallpapers, ringtones, true tones, SMS applications, voice applications, music messaging, video services, interactive pages, CRBT, screen saver, video clippings, live

sport info, contests, karaoke, infotainment, MMS, voice portals, WAP portals, gateways and platforms for vertical solutions (mBanking, mTicketing), etc.

As mobile devices and services become more complex, operators are beginning to realise that there is a mobile usability hurdle to overcome. Ease-of-use is the key. For this reason, we are seeing growing investment from operators across the globe looking to device management technologies as a means of controlling the handsets in the hands of their subscribers.

Operators need to ensure that the handset is as profitable as it can be,



Atanu Mandal, president and COO ACL Wireless

and is correctly configured to access services. Operators also need to ensure that new services can be pushed to the device without interrupting the end user.

Many people point to early deployments of WAP and MMS to demonstrate how poor usability impacts end-user adoption.

Expecting users to configure their own devices, or contact customer care for settings, is unlikely to push such services into the 'mass market' bracket. Operators must take responsibility to ensure the correct connectivity of their customers' devices.

Mobile gaming likely to see meteoric growth

Commenting on the latest trends in mobile applications, Vipul Kant Upadhyay, CEO and president, IAP Company Ltd., added that mobile-specific TV is perfectly modified to fit the mobile context. In addition, digital convergence is happening on handsets - the broadcast paradigm is soon expected to hit the mobile business environment.

With the industry booming at a tremendous space, you get to see innovations in the space of content versioning. "However, the key trend remains, SMS is on the rise, ring tones are popular as ever and mobile gaming will see a meteoric growth in the next six months.

"Conventional media companies are the first companies to adopt this change and see it bear fruits as extension to their existing content. Information is now coming in through the mobile medium as a very potent source, and will change the way people access knowledge sources," said Prashant Narekuli, head, marketing and sales, Coruscant Tec.



Prashant Narekuli, head marketing and sales, Coruscant Tec.

However, Atanu Mandal, president and COO, ACL Wireless, added that mobile applications are at the forefront of interactivity between audiences and traditional uni-directional media, and can lead to the growth of truly interactive TV.

The company recently launched India 6767, which is a unique multi-modal platform that offers connectivity, and allows enterprises to have their own, easy-to-promote short code for their customers as well as an intelligent solutions bundle that helps them achieve mobility goals quickly, smoothly and efficiently.

This integrated, evolutionary and consultative approach of India 6767 goes far beyond the basic connectivity offered by typical ASPs and makes it stand out in the market.

The industry experts also believe that in-flight mobile applications are around the corner, video messaging may soon redefine the way we talk, integration of biometrics and biophysics with mobility can lead to the creation of alternative mobile realities and nano-technology may soon make mobility applications an embedded reality.



Sharad Arora, regional manager SmartTrust India

M-commerce: An opportunity to expand the subscriber base

“VAS services have a long way to go as the revenue from voice is decreasing and operators are concentrating more on VAS services to increase their ARPU.

“With growing technology and the advent now of nano-technology, 3G technologies in India will shift from speech communication to multimedia communication,” added Bhat. According to him, SMS is considered the “fifth channel” for media advertising.

The ubiquitous and instant characteristics of this mobile media channel firmly established it as the preferred method to reach the end users. New product launches take place through SMS marketing. The gaming industry is growing at a rapid pace, and is poised to be the “big thing” in future.

Further, m-commerce will likely prove to be a promising opportunity to expand the subscriber base, increase revenues, increase customer loyalty, and differentiate market players from competition.

The mobile phone, for example, could become a great device for offering personalised services and gathering customer information. CRM

and personal information manager (PIM) systems could potentially know all about users, their preferences, and their movements in real time.

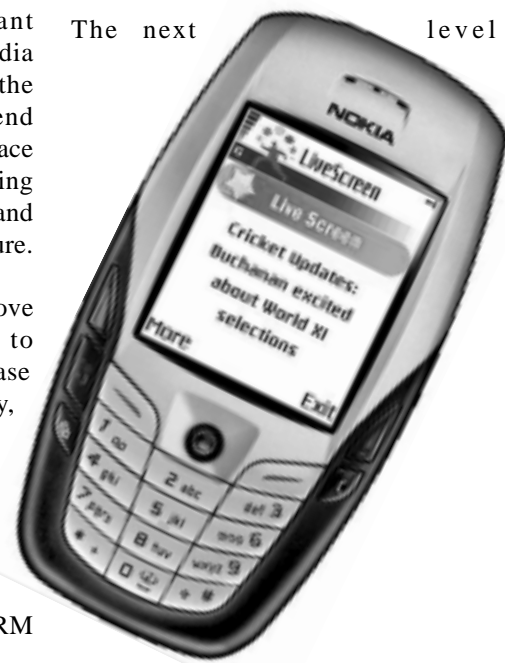
The convergence of telecom and media industries is leading to new opportunities in infotainment-related VAS. This development could prove to be an effective way to invigorate the historically underdeveloped realm of direct marketing.

According to industry experts, TV will likely be the next step in mobile applications. “As a service, mobile TV has a great potential. This is due to the fact that acceptance of mobile TV is high, and mobility and flexibility are the strongest perceived benefits of the mobile,” noted Upadhyay.

Music sector continues to be a lucrative area for mobile apps providers

As for opportunities and innovations in the field of mobile content applications, Prashant said that the opportunities are two fold. First, the market demand itself is growing at a three-digit growth rate, and sees a lot of opportunities in itself within the existing product offerings.

The next level



of opportunities lie in product offerings where users would find the emergence of mobile comics or Momics or Mocos as it will popularly be called.

Video streaming will be in its nascent stage in the months to come, but will see a rise by the end of this year. The concept of mobile TV should see the light of the day early next year.

A unique aspect of the opportunities in India is the fact that the Indian Parliament has endorsed Public Key Infrastructure (PKI) as the basis for non-repudiable transactions (The IT Act 2000).

This will be a key in the mass-market deployment of secure mobile commerce. PKI relies on the use of a private key - a token that is used to identify a user and is stored in a secure environment.

The SIM has been a preferred station for enabling the highest level of security in the mobile domain, and is ready to allow usage of this infrastructure and store users' private keys. "Not too far in the future, one

could expect income tax returns to be submitted by e-mail, signed by a digital certificate on the SIM card.

"Or for that matter, one could expect members of the Parliament to vote on critical issues of national interest without being physically present and yet without the risk of compromise of



identity, integrity, security or confidentiality," noted Sharad Arora, regional manager, SmartTrust India.

Citing the opportunities and innovations for mobile content and applications, Mandal of ACL Wireless said that the biggest money-spinning

innovation in recent times has been the adoption of music to the mobile domain.

This is likely to be enhanced over time, and the music sector remains a hugely lucrative area for mobile applications providers.

"In multi-lingual societies with wide disparities in technology adoption, voice stands out as a clear opportunity to address niches as well as masses. Mobile applications on voice stand out as the outstanding comeback story in India wireless.

M-commerce holds huge potential in the immediate future. In addition, mobile content that addresses the highly localised needs of fragmented audiences subjected to an overkill of broad-based broadcast programming, constitutes another opportunity," he added.

According to Yossi of Celltick, the company's dynamic idle screen product is the only commercial, tested and deployed offering in the market and is already being enjoyed by millions of mobile phone users.

Hottest mobile applications on-hand

Ground breaking MMS applications: Animations, greeting cards, click and print, preserving photographs and numerous such innovative applications are possible with MMS. It is like an empty canvas letting designers stretch beyond imagination. MMS enables consumers to send and receive multimedia messages - combining image, sound and text, and even animation and video. It allows the users to add a personal touch to messages.

Voice-based applications: Music messaging lets customer add music, songs and his or her own-recorded voice along with data/text message and send personalized messages with music messaging applications. This also includes animated instant voice messaging, karaoke, etc.

Interactive voice response system (IVRS): IVRS has given birth to numerous applications in terms of contest, live scores, astro news,

etc. End users can subscribe to happening events, and request related information to be updated on their mobile phones.

New-fangled SMS applications (Infotainment): Cricket is like a religion in India - this along with astrology and Bollywood dominate VAS services in India. Infotainment services such as auctions, donations through SMS, specific content such as mandi (market) prices, weather updates, business and financial advisories for small business, medical education, career counseling over SMS, etc. are the latest developments in SMS applications. One can add videos, images, attachments to normal SMS and send across infotainment services like celeb talks, weather channel, polls, chat, track mate, dating are latest VAS services in the market.

Audio/video entertainment: Handset compatibly with MP3 players, audio/video entertainment with Windows media player or Real player

have made it possible to offer live videos to be downloaded. Movie editor helps users create movies and compose music.

Morphing: Click pictures, edit them and send them. 3D face-morphing technology allows the user to edit pictures with morphing effects and magnitude settings. Users can choose different expressions that can make the subjects in the pictures happy, angry, goofy and send them to loved ones.

Java applications allow multiplayer gaming: The mobile-videogame industry is showing off the progress in terms of real-time multiplayer gaming modes with advent of next-gen gaming platforms.

Vernacular content: It is the latest development on content side that is picking up momentum. End users can download regional content on handsets.

LiveScreen, Celltick's main product, displays free, silent and non-intrusive messages on mobile handsets while they are in idle mode - just like a screen saver.

When users see a message that interests them and want to know more, they simply click on the OK button. A menu opens and presents various options based on the data services offered by the operator. A second click launches the desired service.

"LiveScreen uses Celltick's interactive broadcast technology enabling news and other content to be transmitted to millions of users instantly.

Celltick's commercial deployment validated the system's ability to drive data services adoption, with 25 - 32 percent of LiveScreen-enabled users becoming regular consumers of data services (compared with 2-5 percent before deployment)," added Yossi.

Industry needs to offer innovative apps on 3G

Commenting on the status of mobile content and applications in Asia's emerging mobile market, Yossi said that in many areas the Asian mobile market leads the world in terms of innovation.

It is an important market for Celltick and operators are looking for new and exciting services to provide to their customers.

Bhat noted that mobile phone handsets are fast becoming the preferred method of accessing information, and camera phones are contributing to higher satisfaction levels with the consumer mobile experience.

Strong mobile penetration continues to reach some of the highest levels

worldwide. Some of the major trends are:

- The mobile data VAS market is receiving significant attention from mobile operators;
- SMS continues to accelerate. In the Philippines, text messages dominate traffic by a factor of 8 to 1 (SMS:Voice); and



- Mobile content portals and VAS portals are a vital part of the mobile ecosystem. Ringtone downloads, java games, music services are very popular with the youth in Asia, and the Web, TV and newspapers provide them with the solution.

Along with SMS, the market for MMS is growing exponentially. Mobile camera phones are a hot commodity in Asia, and are helping mobile operators achieve higher ARPU and profits by creating more data traffic through MMS services.

Game downloading increases as the content developers are working more toward game accessibility. Wallpaper downloads are decreasing in Asian countries.

Due to low end-user pricing, game developers are few in Asian countries, and as a result, European countries rule this domain. Korea and Japan together are responsible for 70 percent revenue generation in the gaming segment.

"We are largely dependent on western content than local, regional content, which should be customised according to geographic and demographic criteria. Singapore is the most innovative in terms of VAS," added Bhat.

The MP3 audio market in China will continue to be very strong. China's interactive entertainment market holds great potential. Be it MP3, Internet, mobile gaming and videos, by 2020 China's youth will be the pioneers for adopting advanced digital home entertainment solutions and wireless gaming platforms.

In the Southeast Asian region, there are a host of countries like Hong Kong, Singapore and South Korea that are already offering 3G services. In these countries, the maturity level in using data services is much higher than in India.

Regarding the status of mobile content and applications in Asia's emerging mobile market, Upadhyay is of the view that most of Asia's operators are aggressively moving toward content provision as voice ARPUs decline.

With 3G technologies, the paradigm shift from voice to content becomes the primary business model for operators and content providers. Many mobile operators in Asia have spent considerable amounts just to acquire



the 3G licenses to provide this service, followed by capex spending of several billions of dollars on setting up 3G infrastructures. But the build out of these networks still have not delivered much value to the consumers.

One of the most frustrating aspects for operators is that 3G handsets have been heavy and unappealing. Current thinking is that 3G users are looking for e-mail access, online gaming, videoconferencing and location-based services.

But is this really what consumer's want? Is it what they will pay for? Or is it simply just what can be provided just now?

According to Upadhyay, the industry needs to offer innovative application on 3G. He added that, areas such as applications browsing; paid information; entertainment services; m-commerce; video telephony, etc., have to be explored.

Asia has arguably the most developed and evolved mobile content and applications market in Japan, along with China, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, etc. Mobile content and application development is amongst the top three growing sectors in Asia.

With growing mobile-density and high-usage of SMS and other VAS, the western world is focusing on Asia as a potent market to sell its mobile content.

Time ripe for unique services to come to forefront

India, like many other markets in Asia, runs the risk of turning into 'dual' market between urban and rural users. Rural users, who tend to be voice-only customers, deliver roughly half the ARPU of their urban counterparts.

Whilst the advancement of mobile technologies has delivered world-leading applications and services to those who can afford the latest handsets, operators are looking at how they can increase the profitability of those with lower incomes and feature-poor devices.

"It is in these rural areas where the take-up of GSM is likely to be the greatest in the coming years so the challenge is in introducing mass market value-added services that can be accessed on basic devices and without the support of 2.5G (or above) network technology. The creativity of local operators in delivering such services has proved successful," added Sharad.

For example, using basic text-based services, SmartTrust worked with local operators to provide information services, sports results, even ticketing applications to the masses. This is the key, not only in raising profitability but also in increasing customer loyalty.

However, ACL's Mandal pointed out that the mobile content and applications market in Asia has, by and large, followed a 'product-first' approach rather than a 'need-first' approach.

This has led to some peculiar swings such as the premature introduction of WAP in the mid 90s, the sudden talk of the demise of voice and its'

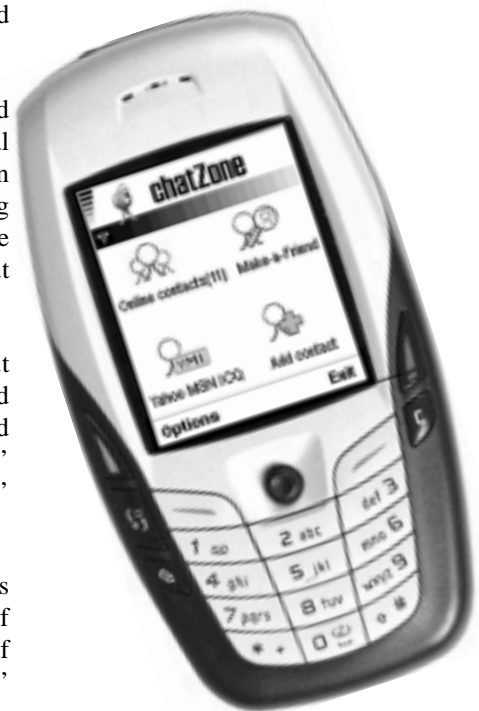
(un)surprising reprise through the advent of music, and ringback tones. Mobile content, at least in this part of Asia, has become highly undifferentiated across operators and the time is ripe for unique services to come to the forefront.

Commenting on the role played by mobile applications in generating revenue for the operators, Coruscant's Prashant said, with the current business model existing in India, operators benefit in a very large way.

VAS is a key SBU with every telco, and they seek to expand their partner portfolio to maximise profits. Unlike evolved markets such as Japan where operators have understood the importance of VAS content providers, the business model is in favor of the latter.

India is still in this pre-realisation phase where the business model favors operators. With time this has to change, as the demand/volumes for VAS will go beyond the growth curve, where VAS content providers will have opportunity on their side.

"Mobile applications and content



induce people to use their phones more, thereby generating incremental revenues.

Spare capacity gets utilised, thereby preventing wasteful non-utilisation. As usage increases, the cost per unit of hardware keeps getting recouped as well. At some point of time, these applications will become essential services, and will provide users with a key reason to choose - or not to choose - a specific operator," Mandal pointed out.

LBS, m-commerce likely to be next revenue generators

Providing a roadmap for mobile content and applications market, Coruscant's Prashant said: "SMS will remain the most popular application, followed by personalisation of content such as ring tones, wallpapers, themes, etc. Mobile games are also likely to improve their pace. Mobile comics will be a hot favorite this year, while video streaming will soon see the light of the day."

However, Mandal believed that location-based services and m-commerce are likely to be the next 'revenue generators'. Real file downloads of music over GPRS networks will create an absolutely new market for music in the near future that is personalized and portable as never before. 3G is around the corner, and full-fledged streaming content and high-speed applications will be the order of the day.

According to IAP's Upadhyay, mobile TV will create the opportunity to offer existing content to mobile customers. TV integrated into a mobile phone will allow for seamless interactivity, which can generate extra revenue and enable sophisticated programs or more valuable advertising.

DVB-H (digital video broadcasting - handheld) will offer traditional broadcast network operators to expand

their business into the mobile domain and secure their future revenue growth.

While Coruscant's Prashant added that the strategy is quite simple - put your ears to the ground, listen to what consumers want and give them what they want. It is key to have sound and strong partners and even more important to have a profitable business plan. The entire value chain will collapse if any of the links are weak.

India already has a strong legacy in delivering revenue-generating data services. Bharti's AirTel was one of the first operators worldwide to launch menu-driven services that allowed

3G is around the corner, and full-fledged streaming content and high-speed applications will be the order of the day. India already has a strong legacy in delivering revenue-generating data services. Data services and content should be personalized according to the user type, or there should be a mechanism available that allows users to select their own menu of content.

users to browse interactive menus on their handsets and download content.

As time and network generations pass, the same operators advance their data portfolio to include rich media content (such as Bollywood music and video downloads).

However, there are a number of challenges (and strategies) that any operator must address in order to succeed financially in the world of

mobile data. These include:

Ease of access: The users must be able to gain easy access to services. Much of the problem with slow uptake in data services (such as content downloads and even MMS) can be traced back to user complacency and the complexity of handset configuration.

Handsets need to be configured by the operator to access GPRS, messaging settings, etc. If these are not set, and the user experiences a failure when attempting content downloads, that user experience is greatly impacted - as is the operator's brand.

With such a variety in device types, operating systems and network generations, there is an enormous burden on the operators to ensure 100 percent data connectivity and ensure that each handset is as profitable as it can be. For this reason we are seeing growing interest from the operator community for mobile device management (MDM) technologies. These allow the operators to remotely manage all devices within their network at any point in the lifecycle. As well as configuration of a new device, operators are able to refresh settings or amend them according to changes in services and network configuration.

Personalisation: No two mobile users are the same. Expecting an entire user base to consume the same portfolio of services is a risky strategy. Data services and content should be personalized according to the user type, or there should be a mechanism available that allows users to select their own menu of content. For example - bespoke content menus for the teenage market, or business users. This ensures that only relevant services are displayed and users do not have to waste time searching for interesting content. Such an approach to mobile data has delivered almost immediate increases in data traffic at a number of SmartTrust operator customers worldwide. 