



3G and Beyond, Opportunities for Nepal Telecom



Rabindra Jha
Acting Manager
Mobile Services Directorate

Background:

In competitive market environment, competitors will focus on market segments where profit margin is highest. In order to avoid losing customers at large scale, NT has to adopt the present technological development in GSM functionality before the competitor does.

Customer behaviors are also changing with time and world technological development. All operators in the world are focusing on the value added services to improve the revenue i.e ARPU (Average Revenue per user) besides the voice service.

Mostly people in developing countries are using mobile as the means for voice communication. But the scenario is changing in Nepal itself.

If we see the data of SMS per user for last two years, we can conclude that Nepalese customer are also moving slowly towards data instead of voice. We have seen the “Best Wishes” messages in our New Year eve or Dashain festival through SMS instead of voice. It is growing year by year. In 2063 B.S., there were about 3300 K messages during Dashain Festival whereas in this year in the same period, it increases to 12000 K messages. Though subscriber base was about half on 2063 B.S. then this year but number of messages is nearly four times than last year Dashain. This data clearly shows the Nepalese customers changing behaviors towards data.

The present mobile field is too replete with business opportunities due to the continual technical advances and growing popularity of mobile terminals. The rapid launch of commercially viable value-added services in the mobile arena is essential for operator to forge a solid foundation and establish future profit potential in the current competitive mobile market.

The data is related with not only SMS rather Video conference, video streaming, mobile purchasing and many more Content dependent services. These services can be provided by 3G or Beyond service in mobile market.

Description:

The evolution of mobile in Nepal has been from 16th May 1999. But in world it is quite old technologies. In 1980, Scandinavia of UK, France & Germany started analog Mobile system.

Since 1980 to 2008, there are enormous development and evolution in mobile field. Let us have brief description of it.

Wireless System Evolution

First generation: Almost all of the systems from this generation were analog systems where voice was considered to be the main traffic. These systems could often be listened to by third parties. Some of the standards are NMT, AMPS, Hicap, CDPD, Mobitex, DataTac.

Second generation: All the standards belonging to this generation are commercial centric and they are digital in form. Around 60% of the current market is dominated by European standards. The second generation standards are GSM, iDEN, D-AMPS, IS-95, PDC, CSD, PHS, HSCSD, and WiDEN.

“2.5G” (*and even 2.75G*) are technologies such as i-mode data services, camera phones, high-speed circuit-switched data (HSCSD) and General packet radio service (GPRS) were created to provide some function of third generation.

Third generation:

Those functionalities of second generation were built to introduce the possibilities of so increase demand for 3G services.



To meet the growing demands in network capacity, rates required for high speed data transfer and multimedia applications, 3G standards started evolving. The systems in this standard are essentially a linear enhancement of 2G systems. They are based on two parallel backbone infrastructures, one consisting of circuit switched nodes, and one of packet oriented nodes. The ITU defines a specific set of air interface technologies as third generation, as part of the IMT-2000 initiative. Currently, transition is happening from 2G to 3G systems. As a part of this transition, numerous technologies are being standardized.

The standardization of 3G evolution is working in both 3GPP and 3GPP2. The corresponding specifications of 3GPP and 3GPP2 evolutions are named as LTE and UMB, respectively.

Cellular mobile telecommunications networks are being upgraded to use 3G technologies from 1999. Japan was the first country to introduce 3G nationally, and in Japan the transition to 3G was largely completed in 2006. Korea then adopted 3G Networks soon after and the transition was made as early as 2004.

4 G or Beyond Third generation:

3G evolution uses partly beyond 3G technologies to enhance the performance and to make a smooth migration path.

A 4G system will be able to provide a comprehensive IP solution where Voice, data and streamed multimedia can be given to users on an “Anytime, Anywhere” basis, and at higher data rates than previous generations. There is no formal definition for what 4G is; however, there are certain objectives that are projected for 4G.

These objectives include: that 4G will be a fully IP-based integrated system. This will be achieved after wired and wireless technologies converge and will be capable of providing 100 Mbit/s and 1 Gbit/s speeds both indoors and outdoors, with premium quality and high security. Fourth generation: According to the 4G working groups, the infrastructure and the terminals of 4G will have almost all the standards from 2G to 4G implemented.

Although legacy systems are in place to adopt existing users, the infrastructure for 4G will be only packet-based (all-IP). Since 4G is a collection of wireless standards, the final form of a 4G device will constitute various standards. This can be efficiently realized using SDR

(Software-Defined Radio) technology, which is categorized to the area of the radio convergence.

Some proposals suggest having an open platform where the new innovations and evolutions can fit. It is generally believed that 4th generation wireless networks will support a greater number of wireless devices that are directly addressable and routable. By increasing the number of IP addresses, IPv6 removes the need for Network Address Translation (NAT), a method of sharing a limited number of addresses among a larger group of devices.

4G will offer all types of services at an affordable cost.

The Japanese company NTT DoCoMo has been testing a 4G communication system prototype with 4x4 MIMO called VSF-OFCDM at 100 Mbit/s while moving, and 1 Gbit/s while stationary. Existing 2.5G/3G/3.5G phone operator based services are often expensive, and limited in application.

4G should be able to provide users with streaming high-definition television.

At rates of 100 Mbit/s, the content of a DVD, for example a movie can be downloaded within about 5 minutes for offline access.

Uses of 3G and Beyond i.e. 4 G:

Value Added Services in the new generation mobile technology arena are a rising star in Asia fast growing wireless business. Voice is increasingly becoming a commodity. ARPUs continue to drop. There is an increased transformation of business models with an aggressive focus on value added services. Value Added Services is increasingly a growth area which helps the operator to maximize revenue and grow its ARPU as well. Propelled by the need to bring in service differentiation, operators are bringing new value added services in order to satisfy the growing demand of consumers.

The growth of this market sector has attracted wireless operators, handset manufacturers, content developers, music & film companies, cartoon artists, game makers and musicians for ring tones, gaming, mobile imagery, WAP, wall papers, logos, SMS based contests and streaming audio & video.

SMS has emerged into the second largest basic mobile service after voice services and key service of income for mobile operator. However, the pace of its rise did not mask its inherent defects. SMS remained based on traditional SS7 service signaling bearing and



supported limited content in the form of text messages.

In this field, Nepal Telecom has focused in some extent but not at required level. As we are using some SMS-based value added services, which has not become popular in Nepal though there are limitation of market even the marketing techniques are lacking behind.

Mobile marketing is a unique way for brands to communicate directly with their customers, providing access, insight and feedback at the individual level. According to the Mobile Data Association, 41.8 billion text messages were sent in 2006, with 4.3 billion sent in January alone—a year-on year increase of 38 per cent

Source: Telecoms.com, 13 August 2007 by Gareth Maclachlan.

The above quotation clearly explains about the SMS growth rate which is valid for Nepalese customer too. It has been explained earlier that there is four times increment in SMS sending rate in NT's customer.

Now time has come to think about other means for collecting revenue from other services than voice. If we do late, our competitor will get benefit like phrase that "Early bird catches the worm".

To fulfill this requirement, it is demand and world train to move for Data services for it, we need high speed data service in GSM communication system.

Countless technical services are gradually changing the ways we live and work in 3G/4G.

E.g. Mobile TV, mobile newspaper, mobile advertising, mobile shopping, navigation service, Map query, SMS attachment and wireless portal.

It is sure that mobile phones are expected to be the next new mega hit after the internet and mobile content market will become a large industry. Because of the above mentioned services, it needs proper contents to use 3G or Beyond functionalities to do marketing.

Generally Contents are of four types:

1. Games.
2. Entertainment.
3. Business.
4. Life.

Mostly operators has already introduced content search engine to download platform of mobile. It reduces the time required for searching the desired service.

Let us take one example of 3G service i.e. Mobile Advertising.

Mobile advertising has become an important marketing tool to develop business transaction. It

becomes the double-edged sword. It changes the marketing techniques from passive to active condition. Since the advertisement in TV comes, mostly viewer used to change the channel where he/she can watch something else except advertisement whereas in mobile, if you want to know in detail about any item, simply you click upon the indicated place and have look if not then can be ignored.

Advertisers need access. Mobile operators give the way through 3G/4G.

In mobile advertising, Customer needs 4C technique to accept the advertised matter.

The 4 C is: Choice, Control, Customization & C Quid pro quo.

Here, the meaning of *Choice* means you have choice to accept or reject any advertisement. Similarly for *Control* means you can easily avoid such message to come in your mobile, *Customization* refers to which type of message I want to receive. However *C Quid pro quo* refers to want some pay-back from advertisers such as reduction in service charges, electronic coupon etc. This functionality prevents the customer from irritation and discomfort.

Generally, operators know about the interest of subscriber that which type of advertisement they like to have. For example, in marriage season someone may be interested to know about the varieties of gift available for bride and place to buy. In this situation, operator can provide this type of advertisement to the targeted customer i.e. old aged people or parents.

Now a days, the encroachment of PC-based Internet services and applications in the mobile field is bringing with a surge of mobile multimedia services such as: Video, digital music, Interactive TV, digital publications, content sharing and multimedia instant messaging. Practically services are: Contactless Payments, Bus trips, Departmental stores purchasing,

Mobile operators are well-placed to benefit from the explosion of interesting user-generated content (UGC). Generally, customer willing to share the video clips generated from their mobile terminals. The operator has to buy such video clips and customer will watch it. Example: London Bombing Clips.

4G protocols use spectrum up to 3 times as efficiently as 3G systems, have better ways of handling dynamic load changes (such as additional cellular users entering a particular cell), and create more bandwidth than



3G systems. Most importantly, fourth-generation systems will draw more users by using standard network protocols. This will allow simple and transparent connectivity.

The most significant feature of 3G mobile technology is that it supports greater numbers of voice and data customers - especially in urban areas - and higher data rates at lower incremental cost than 2G.

Issues to be considered for 3G / 4G:

1. Audio & Video Content provision and restriction.
2. Number change in our post paid number.
3. Large amount of capital required to build the necessary infrastructure for 3G/4G
4. Expense on 3G handset.
5. Lack of buy-in by 2G mobile users to the new 3G.
6. Lack of coverage due to high frequency transmission.

We as an operator has to think on above mention issues to sell the 3G/4G services to Nepalese market. The purchase power of average Nepali citizen is very low which shows that there is lack of marketing environments for high paid services.

Advantages:

In a fourth-generation wireless system, cellular providers have the opportunity to offer data access to a wide variety of devices. The cellular network would become a data network on which cellular phones could operate -as well as any other data device. Customer will have very easy access to the internet from any where without computer.

1. In the Information age, customer shall have very high reach in information sharing.
2. There will be tremendous opportunities for different value added services.
3. Mobile will act as our purse. No problem from money hazardous such as picks pocketing, theft etc.
4. The Video conferencing may enhance the voice communication.
5. Movie watching will be on our finger tips.
6. Mobile will replace the activities of Laptop or computer.
7. Business and decision making will be faster due to high data transfer rate.
8. Digital music online or on demand can be enjoyed.
9. Advertising business will be in boom situation after implementation of such services.

Disadvantages:

1. Advance Terminals are needed for different services.
2. It requires high bandwidth for Backhaul.
3. Profit will be less with compare to other country video market.
4. Supporting infrastructure for payment has not been developed like in Supermarket electronic capabilities, Petrol pump automation and all other purchase place etc.
5. Young generation may copy the MTV or FTV culture.

Conclusion:

Consumers demand that software and hardware which are user-friendly and perform well. Indeed, it seems part of our culture that customers expect the highest quality and the greatest features from what they buy. The cellular telephone industry, which now includes a myriad of wireless devices, is no exception.

Meanwhile, competition in the industry is heating up and Nepal Telecom is also facing neck to neck competition in GSM. We should not miss any opportunity and try to minimize the weakness so that competitor can not take more market share.

As the economic condition of Nepal, where per capita Income is less than \$300 and Economic growth rate is just about 5%, no business can offer high cost services to the citizen. However, we as an operator of GSM service may think that we offer those services which our countrymen can afford.

Hence we should have such value added 3G/4G facilities which gives profit, good image, overcome the competitive threat.

Though there will be question arises that why not take the opportunity to grasp the subscriber like NGOs, INGOs, Diplomats, Tourist and other high paying customer?

The answer is yes, we should think to offer such customer what they like to have in communication sector. 3G/4G will be the best solution for them.

NT should move to acquire new technologies with the help of our *well wisher suppliers* at low cost so that the tariff will be at affordable price to our valued customer.

We have to focus on new technologies but besides this, *Customer care* aspect has to be priorities in all outlets of our company and for better relation with valued customer.

Today's wired society is going wireless, and it has a problem. 3G/4G is the answer. ●