

6.2 Experiences in the Asia Pacific Area

Hubert Ng

Director, Mobile
Hongkong Telecom CSL

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Good afternoon everyone. I would like to thank MoU, Ministry of Post and Telecommunications and Directorate General of Telecommunications for this opportunity to talk about GSM in Asia. It is a subject particularly close to my heart as our 1010 GSM network just passed its first anniversary and Telecom CSL is now the largest cellular operator in Hong Kong with over 130,000 customers.

1. INTRODUCTION

GSM is a European invention, of course, but the technology has certainly been snapped-up in Asia. And the sheer size and commercial clout of the Asian mobile market means we have to look beyond the borders of Europe to assess the full potential of GSM.

You've all heard before the mind-boggling figures used to describe the explosive growth in the Asian telecom market. For instance, Asia has more than a third of the global population, but less than 10% of the world's telephones. And unlike the recession in Europe and America, many of the Asian economies are booming. In addition, many of these Asian countries are seizing the opportunity to open up their telecom markets to new technologies, to outside investment and to new commercial operators - particularly in the mobile sector.

Last year was a great year. We see a growth of 40% in major developed markets of the U.S. and Europe and some 80 - 100% growth rates in less developed markets of Asia Pacific and Latin America. I would predict that the development in this region will take over that of Europe. I will say more about this later.

1.1 Cellular Penetration in Asia

If we compare the number of cellular subscribers in different parts of the world now and in the future, you can see that Asia is catching up fast on Europe. The total number of cellular subscribers in Asia is projected to match the European customer base by 1996. In some of the more developed Asian countries like Hong Kong, Singapore and of course Japan, cellular penetration is already higher than in many European countries.

Of course, there are marked differences in the level of penetration in different countries in Asia. Whilst Hong Kong, Australia and Singapore are in the 5% - 6% range, countries such as Thailand, Malaysia, the Philippines and South Korea are in the less than 1% - 2% range. However, we can see that Thailand and Malaysia will catch up very quickly with their growth rate of about 70% last year. The market in the Philippines is also expected to expand after its GSM launch last October. And China, currently the fastest growing market in the region is at 0.1%.

There is no question in my mind that historic levels of cellular growth in this region will continue and may well be exceeded. One prediction I have seen forecasts a cellular population within Asia Pacific of 30 million within 4 years, up from the current level of about 10 million. And even at 30 million, this represents only an average penetration of 2%. Remember even a 1% penetration in China means 12 million customers. With this figures in mind, I wish I were a manufacturer as well as an operator.

My prediction is that by 2000, the penetration will reach 10% in all major cities of the world. In 2010, all major developed countries (including some currently less developed) will have a penetration rate of 20%. Who is wearing a watch? That is the size of the market.

The question is: how many of the 30 million customers will be GSM customers? If one assumes that half of the 30 million are in Japan, then there are 15 million other users and as we shall see, current indications are that the largest portion will be GSM. GSM 900 and DCS 1800 (the related Personal Network technology) will dominate the world's cellular infrastructure in the 1990's.

1.2 Mobile Network Liberalization in Asia

The development of GSM varies in different Asian countries, two common issues are being faced - huge unmet demand and liberalisation.

One of the keys to the success of GSM is that it has arrived on the market as a fully defined standard just at the time a number of countries are looking at introducing competition to their markets.

For many Asian governments, GSM is a logical choice when it comes to allocating frequency spectrum to new network operators. In particular, the 10 MHz at the top of the TACS band is frequently available for a new competitor to be introduced into a market.

Roaming is also a big issue in Asia and this is one reason why some countries with analogue AMPS networks may include GSM in their development plans. I'm thinking here particularly of places like Taiwan. She now has over a half of a million analogue subscribers, but will introduce GSM next year which will be one of the largest single GSM systems with the capacity up to 500,000 to facilitate roaming to other Asian countries including Mainland China.

2. FAR EAST GSM

If we look at the Far East region as a whole, there is clearly going to be a very widespread and early implementation of GSM. Australia, of course, has 3 GSM networks on the go already.

Thailand has introduced GSM this year and Malaysia is also pressing ahead. In early 1993, the Malaysian government awarded the country's third mobile phone licence to the Binariang group, which plans to operate a GSM network - as well as Malaysia's first satellite system, in 1994.

Singapore Telecom launched its GSM network early this year. Currently the government is liberalising the service market for mobile phones by inviting bidding for new licences.

The telecom market in India has opened up dramatically in 1992 with competitive licences issued in Bombay, Calcutta, Delhi and Madras although they now face some regulatory delays.

Here in China, there are also some GSM trial networks. The one in Jiaxing is already in operation. I expect the trial networks in Guangdong, Beijing and Shanghai to be operational within this year or early next year.

For the Philippines, a trial GSM system in Manila has been announced and now a trial GSM system for Vietnam, in Hanoi, is planned.

Some 27 regional operators have decided to implement digital systems during this two years. Undaunted by talk of "technology imperialism" 23 operators have chosen the European GSM system.

I think this wide acceptance of GSM outside Europe has surprised even the manufacturers. This is partly due to continuing uncertainty over the US standards for DAMPS. But whatever the reason, the degree of commitment in the region for GSM is good news for all of us involved whether as operators, manufacturers, or most importantly customers as it opens up more roaming destinations and encourages manufacturers to invest in further network and handset development.

3. KEY ISSUES FOR GSM IN ASIA

Of course there are a number of problems which have to be dealt with if GSM is to achieve its full potential in Asia.

3.1 Investment in Analogue

While the cellular market in Asia is comparatively undeveloped there is still a lot of cash invested in analogue networks which operators understandably want to recoup. However, in some cases, operators have no choice. For example, one of our competitors in Hong Kong began migrating analogue customers across to digital at the time when their analogue network was less than three years old.

3.2 A5 Encryption

Then we have the question of the A5 encryption system. I think it is very much in all our interests to see that GSM operates to one common standard throughout the world. Producing different terminals for different markets or restricting roaming services in certain countries is undermining the whole *raison d'être* of GSM.

3.3 Handsets

Another problem facing Asian operators has been the issue of obtaining quantities of type approved handsets. This is particularly important in a cellular market like Hong Kong, which has the highest penetration of handsets in the world - some 88 percent of customers are equipped with handheld phones. Again there has been far more encouraging news on this front recently and I expect the good news to continue with the launch of new and exciting products.

3.4 C7 Signalling

The adoption of C7 signalling (especially one of its protocols SCCP - Signalling Connect Control Part) by more countries is important for the future of automatic roaming. OPTUS of Australia and Hongkong Telecom have recently adopted this protocol to facilitate GSM automatic roaming service.

3.5 Half Rate Codec

I'd like to stress that it's essential for us in Asia that ways are found to improve the capacity of GSM systems. In Hong Kong we are right down to the wire in analogue spectrum capacity. We have the highest cellular traffic density in the world at around 100 erlangs per square kilometer in places. Our TACS network already uses microcells of 500 metres in diameter in order to squeeze as much as we can put out of the analogue lemon.

Again the good news here is that more GSM operators mean more pressure on manufacturers to press ahead with the development of the half rate codec. I am pleased to note that progress is now being made with Phase II GSM and that half rate is included. Currently Motorola and ANT (a subsidiary of Bosch) are each working on an official standard.

3.6 Chinese / Other Languages for Short Message Service

Presently SMS only supports English alphabets. To encourage wider use and further development of this service, Chinese and other languages should be made available. We and some other operators proposed the suggestion to MoU last year. I am glad to know that the issue has been referred to the European Telecommunications Institute, which designs the GSM specifications, for discussion and consideration.

4. ASIA PACIFIC GSM COOPERATIVE

I'm sure the Asian operators recognise the importance of attending the MoU plenary sessions four times a year, but it's very difficult for us to keep track of all the developments taking place in the MoU group subcommittees which also meet in Europe.

The Asian operators are now looking at forming their own regional MoU group - or at least a subgroup - to pool information and matters of common concern. We welcome these moves and we at Hongkong Telecom stand ready to play our part in the establishment and operation of such a regional group.

This group held its first meeting in Hong Kong in 1993 and we redesignated ourselves a "cooperative activity" in order to make it clear there will be no duplication of effort, and no creation of "Asia/Pacific" standards.

5. HONG KONG CELLULAR NETWORKS

Here I'd like to talk a little bit about Hong Kong's cellular market and share our experience in introducing the GSM network called "1010".

In recent years, Hong Kong has become one of the most dynamic cellular markets in Asia. We now have four mobile phone operators in Hong Kong, running seven different networks between them. The market has a choice of TACS, AMPS, DAMPS and GSM. This level of activity represents one of the most concentrated allocations of cellular radio spectrum anywhere in the world.

Hong Kong has now about 380,000 cellular subscribers - that's a penetration of approximately 6 percent. In a competitive market of 4 operators and 7 networks, Hongkong Telecom CSL has 34 percent of the total Hong Kong cellular market. Of course, we've had to be fairly innovative in our network engineering in order to get the most out of this limited radio spectrum. And we recognise that we need to be just as innovative with GSM.

Let's forget technology for a while and focus on customers. The success or failure of any service depends on how well it meets customers' expectations. Fortunately for us, Hong Kong people have grown up in a communication culture. Talking is an extremely popular pastime. During the past few years, we've learned a lot about mobile phone users in Hong Kong, but to prepare for our GSM launch, we asked existing customers what their expectations were regarding a new digital network.

5.1 Attractiveness of New GSM Network

We found a high level of interest in GSM and that many were enthusiastic about the value added features like the built-in pager. However, it is clear that the challenge for all of us is to meet customers' expectation for first class service both in network quality, coverage and availability of handsets of the right size and weight.

All information gathered, including feedback at customer focus group, has been extremely useful in planning our network and in developing our marketing strategy. For instance, our research indicated that nearly all our potential customers were very attracted to the idea of being able to use their GSM phones on the underground railway in Hong Kong, the MTR. And so we will provide coverage in the underground, the world's first underground digital network coverage, both in the stations and in the tunnels.

I should say that the option of extending coverage to the MTR was open to all operators. We were the first to see the value of this to our customers and I can tell you there has been three years of hard work to get to where we are today.

5.2 TCSL GSM Network Strategy

At Hongkong Telecom CSL, our network strategy for the 1010 GSM network is to provide an unbreakable line of communications by building the best quality digital network in Hong Kong and by providing the best value added services.

Thanks to our engineers, this strategy is realized by:

- over 160 radio stations covering the whole territory
- the world's first underground railway coverage
- the world's first fully integrated messaging service combining Voice Processing System, Short Message Service and Personalised Answering Service
- cover all motor tunnels

Is our 1010 a success? I'll let you be the judge.

6. GSM BENEFITS

Let's look at some of the key benefits of GSM. The key ones are:

- better co-channel interference immunity (11dB Vs 18dB in TACS) - more effective frequency reuse
- microcell potential
- mobile assisted handover and power control - better reception quality
- half rate codec - capacity can be doubled
- powerful parameter set (e.g. timer for handover / power control) - more flexibility to operators in fine tuning the performance of the network
- compact equipment size (base stations can be as small as a television set) - easy installation and storage

I should add that GSM is feature rich, e.g. messaging service, mobile fax, mobile data. Some of these benefits we still have to wait for but we are looking to Phase II to assist.

7. CONCLUSIONS

Here are some lesson we learned:

- GSM is a success - a catalyst for change and an engine for growth
- installing digital is a complex task - careful planning and continual fine tuning is essential
- good manufacturer support is key
- focus on coverage and quality

The locations in which you operate in the world may be different but are the issues really different? We have a technology standard that works, that is available and that is continuing to evolve. We have markets at different stages on the escalator - but moving in the same direction.

In conclusion, I'd like to stress a couple of messages from my talk this afternoon. Firstly, that GSM is already a thriving commercial concern in Asia and is going to grow fast. Secondly, that GSM's future as the Pan-Asian mobile phone system (excluding Japan) is pretty much assured.

Thirdly, any technology is only as good as the operator can make it. The skill comes in implementing new technology in a hostile environment to make sure it delivers on customer expectations. The new technology opens new doors. The winner will be the company that best unlocks the potential of the new technology for the benefits of its customers and continually strives to introduce future innovative series and packages that make the service more attractive.

All of us in this room have contributed in some way to the success of our industry to date. We at TCSL are committed to continue to contribute our part as an operator in Hong Kong.

Thank you.