Northeast Asian Telecom Development: Key Issues

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This paper provides follow-on analysis and recommendations concerning the development of telecommunications in the Northeast Asian region. In an earlier paper for the Consultative Working Group on Telecommunications of the Northeast Asia Economic Forum, the analysis was applied to the Tumen River area. (Most countries of the Northeast Asian region are located around the Tumen River, except Mongolia.) The present paper is organized in three parts: an overview of the current status of the region's telecommunications since the last meeting of the Consultative Working Group, analysis of key issues that we consider to be crucial for telecom development in the region, and a discussion of the main barriers that can negatively affect the UNDP's Tumen River Area Development Programme (TRADP).

CURRENT STATUS

In September 1998 the Northeast Asia Economic Forum (NEAEF) and the UNDP Tumen Secretariat held the "Northeast Asian Telecommunications Experts Group Meeting" in Yanji, China. China Telecom Resources presented a general plan for the region's telecom infrastructure design and a guideline for cooperation and investment. (Copies of this work, titled *Development of Telecommunications Infrastructure in the Tumen River Region*, are available by request to email address sun.ctrgroup@prodigy.net or telephone 732-271-9135 in the United States.) In addition, delegates from the region reached the following understanding at the meeting, laying a good foundation for the future directions of the region's telecom development.

Basic infrastructure is already in place, thanks to the vigorous adoption of technology by various countries in the region. Except for North Korea, where more research needs to be conducted, domestic communications in these countries are reportedly well accommodated. For example, in China's Jilin Province, at the center of the Tumen River region, telecom development has received top priority from the local administration. As a result, the local telecom market has been growing at a faster pace than the national average, including teledensity (number of telephones per 100 population) and the penetration of cellular phones. Similar situations are also seen in the Russian Far East and Mongolia, where strong efforts have been made in the construction of national transmission networks and providing local access.

Despite impressive achievements, there are serious limitations in these countries as far as regional communications are concerned. First, voice communications still account for the basic demand in the region, except for Japan and South Korea. Although growth has been strong, the overall penetration of basic service is still low (typically between 10% and 15%), when compared with many parts of the world. While voice communications are essential for the region's economy and trade activities, they cannot address the need for effectively conducting business, especially data communications and information services. Second, countries in the region are at different levels of development that can negatively affect cross-border connectivity. This includes physical construction of switching offices and transmission links, agreement on network protocols, government regulations on international traffic (routing, information control, and tariffs), collaboration in network design, and commitment to investment. It is clear that these issues cannot be resolved without high-level government involvement and further deregulation of domestic markets.

Previous studies were based on the assumption that the region's telecom development would stem from population growth. However, given the region's economies, geography, and climate, it is very unlikely that the region's population boom will be as strong as the booms witnessed elsewhere (such as in Hong Kong and Singapore). In fact, the region's population growth has been about the same as the national average for the past decade, and large-scale labor migration has not taken place, owing to slow economic development and less attractive working conditions. It has now become clear that population growth in the region is not a sufficient factor to justify telecom investment and network expansion. For these reasons, future demand for telecom services is unclear, especially for data communications. This makes network planning and implementation difficult and risky.

Given the fact that telecom networks in the region will connect major business centers and cities with dense populations, mixed backbone connectivity is proposed: that is, point-to-point for major country-to-country routes that typically use fiber optic cables and have high bandwidth (OC-3 to OC-48). In addition, satellite links can be set up for backup and for traffic overflow routing. Point-to-multipoint connectivity can be deployed in areas that have a large number of subnetworks or access points. It can be developed by expanding existing networks or by using VSATs (very small aperture terminals) for thin routes that are typically used for data collection.

It is clear that an approach of "expansion-on-demand" is more appropriate for the region, given the demand and investment allowed. For example, voice is still the predominant service in the region and should be used as a major objective in network design. As demand for data services increases—and it will increase—more bandwidth can be deployed into new networks or routes. This

approach should become more convincing as the difference between voice and data continues to disappear from a technical perspective, so that total bandwidth must take into account all applications, giving priority to those that are commonly used or business accentric.

A critical aspect of data communications is the information services typically delivered by the Internet. No in-depth research has been carried out on the demand and Internet content providers (ICPs) for the region. Or, it may be that there is insufficient business activity that can justify such an effort. The Internet market has seen a strong boom in some of the region's countries. But when the service is intended for a cross-country audience, there are serious barriers—such as national interests, languages, security concerns, and content development.

At present, there is little direct traffic (voice or data) across the region's borders, owing partly to the way the national networks are set up. International traffic must be routed through gateways located away from the Tumen area, for example, and in many countries, international traffic is a monopoly business that does not have tariffs specific to the region itself. Because of this, in many cases, the cost of making a call to a place immediately across a nearby border is as expensive as calling a distant country. To solve this problem, delegates at the September 1998 Yanji meeting proposed a special calling zone, in accordance with the free trade zone currently under study. The calling zone would be assigned a special area code (prefix) regardless of the physical borders. Calls originating and terminating within the zone would have a special rate, which would be much lower than regular international rates.

Although the idea is conceivable, there are problems with regulations and mandates. For example, who is to regulate the traffic in and out of the zone and who is to draft the tariffs? If a carrier is created for the zone, what is the relationship between the new company and the incumbent service provider in the area? When calls are made from inside the zone to another city outside the zone, but in the same country, how will they be charged? Moreover, large countries such as China may be concerned about setting a precedent, since other locales along other borders may demand the same policy.

KEY ISSUES

Based on discussions at the Yanji meeting, we believe the key issues affecting Northeast Asian telecom development have more to do with investment and organization than with technology and network construction. These issues are believed to have contributed to the slow progress in the region's cooperation in telecom projects and services in the past, and its is believed that they will continue to slow down any initiatives in the future.

Specifically, we raise three issues for discussion: cooperation, investment, and organization. (1) Cooperation is about finding the most effective way or ways to get things done, to minimize inherent differences between the region's countries, and to make projects more manageable. (2) Investment is a matter of what can be done, in terms of scale, and how to go about it? (3) Clearly, an organization for the region's telecom development is vital. But what would it do to serve cooperation and investment? We list three basic functions of such an organization: assurance, advice, and coordination.

Cooperation

Obviously, future development of telecommunications in the region cannot succeed without large-scale investment (including direct sales) and technology transfer from countries in the region (notably Japan and South Korea) and others elsewhere in the world. How to achieve effective cooperation, however, remains a serious challenge, given the vast differences in domestic conditions and policies that are always attached to foreign capital and technology.

We raised this issue at the 1998 Yanji meeting and proposed bilateral cooperation as the basic approach to overcome complexity. Compared with multilateral cooperation, which is often applied in generically similar cultures, bilateral cooperation can help to identify quickly cooperative agendas, tasks, and terms without potential conflicts in national rivalry, interests, and bureaucracy. In addition, bilateral cooperation can make projects easier to plan (because there are only two parties involved) and ultimately easier to accomplish. For instance, when an investment decision is made with a particular target (a company or a network), the requirements can be clearly stated (investment scale, timeline, objectives). At the end of the project, results can be evaluated by comparing them with these requirements.

Another advantage of bilateral cooperation is that it can reduce risks substantially. There are two aspects of risks. The first is political. The risk tends to increase when more than two parties are involved, each with different motivations and expectations, especially when the political diversity is high, as in the case of this region. The second risk is business. When more parties are involved, the investment conditions tend to become increasingly complicated, which can lead to over-drain of funds, whereas viability does not necessarily improve. This can also cause delays in scheduling and in delivery of results, and can hurt the confidence of investors.

Finally, bilateral cooperation can promote mutual understanding between foreign companies and customers, which hopefully will lead to follow-on projects. Experience shows that when a project is well defined, it has a better chance to achieve objectives and create good relationships, even on a personal

level, which in turn tends to result in repeated business with the same customer. This would be very difficult to do in a multilateral environment.

In order to highlight opportunities for bilateral cooperation, it is suggested that the Forum and another agency designated for telecom development in the region (to be discussed in the section on organization below) develop a promotion campaign to publicize the needs and requirements in the region's countries. There are many ways to pitch the needs and requirements of the region, such as news conferences, road shows, bilateral meetings, and preparation of requests for information (RFIs) or requests for proposal (RFPs). It is regrettable that little effort has been made on behalf of the region's countries seeking cooperative opportunities beyond Northeast Asia. In fact, TRADP is little known outside the region, despite the fact that it was launched eight years ago.

It should be noted that although various NEAEF meetings on the region's telecom development have been held, in most cases participants only from within the region and the United States have attended. Other countries outside the region have been almost entirely unrepresented. This not only seriously hinders business opportunities for countries or companies in the region, but also, in effect, delays development, owing to limited resources and commitment.

To break the impasse, we would like to introduce the notion of flexibility in cooperation in the region. First, companies should not be confined to Northeast Asia, but should include countries from anywhere that demonstrate interest and have resources that the recipient country is interested in. This should include Europe, North America, and the rest of Asia. We believe there are a great number of resources out there that are anxious to engage in projects in the region. It is up to the region's governments and agencies to reach out and make a good case for TRADP.

Second, in addition to companies, alternative sources must be mobilized. For instance, local governments and other administrative bodies, besides central governments, can be very effective in soliciting funds and managing projects. Other alternative sources include collective organizations, research institutions, and local enterprises.

Flexibility is based on pragmatism: there should be no preset order in selecting partners or origins of sources—for example, government versus private sector, or Asian versus non-Asian. The grand criteria should be based on the benefits the recipient (company or country) is getting, not on political or national factors. Flexibility also entails a progressive approach. Cooperative terms must be adjusted according to demand, availability of technology or products, investment commitment, and feasibility. Cooperation is an ongoing process; the terms and conditions are always changing, owing to internal and extraneous conditions.

Investment

From the time when the Tumen River Area Development Programme (TRADP) was launched in 1992 and through several rounds of meetings, the perception of the scale of telecom investment and the basic approach have changed significantly. After discussions at the 1998 Yanji meeting, it became clear that the investment in the region's telecom sector should entail the following aspects:

- *Upgrade and expansion of voice networks.* This includes switching capacity, adding features for business and residential requirements, and improving reliability.
- *Mid-term aspects.* Integration of data services, including implementing public and private network elements (or virtual private network), increase of bandwidth, and scalability.
- *Internet.* Expanding point of presence, adding connect points to the backbone (regional and national), and improving quality of access (line conditions, installation for businesses and residents).

In addition, investment in the region requires a long-term perspective to be successful. This principle is based on the fact that short-term returns in the region can be low and the time for any meaningful returns can be delayed, causing high risks in the short term. The main reason, as indicated earlier, is the limited number of businesses in the region (and their size), and the relatively weak demand for telecom services. It is unclear whether business and residential use of services will increase significantly as the result of an expanded network and new services.

Although Northeast Asia presents a favorable opportunity for investment in telecom development, given the area's strategic position and growth potential, a specific investment project does not guarantee success unless the following aspects are carefully studied and executed.

Identify Objectives

What is the target in the short term and long term? This analysis should be as specific and concrete as possible. The assessment of objectives should include not only prospects of returns, but also budget commitments against projected returns.

Select Partners

A successful partnership involves creating conditions so that the objective is clearly understood by all parties and the risks can be shared. In order to achieve this, the terms of liability and responsibility of all parties must be clearly stated in the beginning and carried out throughout the engagement period.

The circumstances around the region are highly complicated and, to a certain degree, volatile. If an investment intends to stay with a particular country or project for some time, the role of in-country partner or partners becomes extremely critical. The investor should try to obtain as much information about potential partners as possible, and find out how they can help to deliver the investor's objectives. Do not base the judgment on information from a third party, because it can be biased and lead to disaster later on.

As in any situation of building partnerships, there is a potential conflict of agenda. Very often, the in-country partner's agenda is different from the investor's, and the investor must be diligent about finding out the key disparity and ways to harness the partner's resources and capability to achieve his goal. Although compromise is often necessary, a decision must be made whether to continue the partnership or to find a new one based on basic principles and underlying objectives.

Finally, partnership must develop an exit strategy in case the project falls through or the objective cannot be achieved, owing to unexpected circumstances. In these situations, the investor must find ways to retrieve part or all of his investment, or readjust investment objective to reflect changes in the project. In case of a conflict of interest, the investor should leave enough room to select a new partner if the project continues to present opportunities.

Basic Approaches

In general, investment takes two forms that may be appropriate for Northeast Asia: direct imports/sales and joint ventures. It is possible to form a solely owned entity to manufacture or provide a service in the region (if regulations permit), but given the characteristics of the region, one should expect many difficulties in business limitations, high investment, and risks associated with low demand or poor sales.

Direct import is a straightforward approach with little commitment to future engagement. With this approach, the investor can stay outside the region with an in-country sales representative (usually an office and a team) that submits orders. Although this approach is safe in terms of risk exposure and marketing expenditure, it often does not guarantee high sales volumes and is vulnerable in pre- and post-sale services, such as training, in-country customer care, and changes in customer needs.

Direct sales was effective in the early days when the region's countries began to open their markets to foreign imports. During that time, demand was strong for advanced products, and customers had few options in selecting vendors. As more companies have joined in the race to explore business opportunities outside their home markets, competition has forced prices to drop, and customers have become more selective and cautious, which makes it difficult for direct sales to

maintain customers and profit margins. In China, for instance, many customers demand vendors to set up in-country facilities (a spare depot, a training center, or even manufacturing) to serve their up-to-the-minute needs, and they use this as a precondition to screen out bidders.

Joint ventures (JVs) have become very popular in this region, as they are elsewhere in the world. JVs can take many forms, based on specific requirements of the customer, to serve different purposes. The following are commonly used models.

- Research and development (R&D). This form entails a high content of technology transfer. It usually takes place in countries where the investor believes there is great growth potential and wants to take advantage of the country's high quality but low-cost talents. R&D reflects a long-term engagement strategy, since it often means targeting for the future market by giving the technology away as an investment.
- In-country distribution. If the objective is to increase sales rather than leading-edge technology, a JV in distribution can help reach local customers within a short period, taking advantage of the local partner's existing sales channels and low costs. Distribution also creates a profit sharing scheme, with the local partner having the right products and marketing strategy.
- Operations. When providing a service (basic or value-added) in a new market, a JV can take advantage of a foreign operator's experience. Many cases show that operations experience can hardly be learned from books; it is gained from everyday activities in network design, traffic analysis, routing scenarios, and service provisioning. The major risk with operations JVs is regulatory: most countries in the region regard telecom services as an issue of national security and therefore impose tight conditions for JVs, if not totally disallowing them. The long-term prospects, however, remain positive. As more and more countries have embraced the concept of opening their domestic markets to foreign investment and competition, it is only a matter of time until all Northeast Asian countries allow JV network operators to compete in a more liberal environment.
- Assembly. This becomes a viable option when imports are expensive by local standards. Experience in many countries show that, if conducted well, local assembly can produce quality comparable to imports and at a fraction of the cost of imports. This point is especially relevant to the Northeast Asian region, because of its relatively low costs in labor, materials, inventory, and transportation. Nonetheless, setting up JV assembly requires adequate infrastructure and a supply of quality labor.

These may not yet be readily available in the region, which presents low incentives for foreign manufacturers.

There are other forms of investments, such as BOT, BTO, and BLT, that have become popular in recent years. Each approach carries different levels of commitment, risks, and potential gains, depending on market conditions surrounding the network, most notably, regulations. In some situations, maybe only one option is permitted; in others, only one option may be viable from the perspective of profit.

- BOT (build-operate-transfer). With this model, an investor constructs a network for the local service provider and operates for profit under predetermined terms (timeline, profit retention). At the end of the engagement contract, the network is transferred to the local service provider free of charge. In this case, the local company has low risks in network construction and profits, but must endure a long period before it can have control of the network and reap gains.
- BTO (build-transfer-operate). In this approach, a foreign investor transfers the network after construction and negotiates a profit sharing plan with the local service provider. The advantage is that the local company can have its hands on operations at a much earlier time of market development; the disadvantage is that the local company may have to pay a high percentage of the profit to the foreign investor as a form of repayment.
- BLT (build-lease-transfer). As an alternative to BTO, a foreign investor can lease the network to the local service provider for a set period, before the network is completely transferred to the local operator. During this period, the local company pays a lease fee to the foreign investor while retaining the profit from providing the service through the network. The advantage of this approach is that the local company can build up its operations experience quickly by learning from foreign partners during the lease period.

Organizational Issues

One proposal at the 1998 meeting in Yanji was the notion of establishing a special agency to coordinate telecom services and business activities in the region. We believe the idea is still sound, given the region's vast differences in political, economic, and cultural conditions. Discussions on creating such an agency should continue. Here we put forth several related issues for further study.

Essentially, the agency (called the "Telecom Advisory Board" in the report on *Development of Telecommunications Infrastructure in the Tumen River*

Region) should have the following mandates for its establishment in order to be effective, practical, and fair.

- The UNDP and NEAEF should take the core leadership. Because UNDP and NEAEF are well recognized international organizations, and UNDP carries out a UN mission in the region, their leadership role will likely encourage commitment and engagement from regional governments and international companies.
- Participation in the agency should include all countries in the region, including North Korea. Actual representation may include officials, regulatory bodies, and industry experts.
- This agency should be maintained as a "super" organization. The term "super" entails two aspects. First, it treats the region as a single entity, regardless of individual governments. This policy is aimed to significantly improve the agency's efficiency when planning and implementing specific tasks, such as network design, interconnection issues, service provisioning, and tariff policy. Second, it does not have a close affiliation with any particular government or company, so that the entire region can develop according to a general plan.
- The agency should be loosely organized and issue driven. It may set up an executive office to deal with daily duties, but agency members should be called upon only when serious issues arise and require the agency's full attention. This setup is intended to avoid bureaucracy and increase effectiveness. The agency should keep itself away from everyday business activities, focus mainly on regulatory issues, and advise on future directions.

To answer the questions in the beginning of the paper, the functions of the agency should cover the following areas.

- Regulatory advice. Since the region is essentially a cross-region environment, regulations in each country are different. It is the agency's responsibility to provide a common platform for compromises and yet benefits for all participating countries, however difficult that mandate may be.
- Technical issues. Countries have adopted different standards that will likely affect progress in implementing networks and services. The agency should be able to offer recommendations on selecting technical standards (interfaces, protocols, and product specifications) to help reduce problems in internetworking and service roaming. The agency should also provide standard procedures for systems procurement and feasibility analysis for new investors.

- Business activity. One of the most important tasks for the region is to publicize the region's needs and requirements for telecom technologies and services. In order to achieve this, the agency should regularly furnish investor information and, in case of initial interest, act as a match-maker between investors and local customers.
- Assurance. Since the agency is not affiliated with any particular government, it can provide impartial assurance to investors on behalf of local customers. When disputes occur, the agency can even provide arbitration to protect the investor's interests while doing its best for foreign funding.

Operating a regional super agency is by no means an easy and straightforward process, given the region's complex political situations and unequal economic development. However, past experience also shows that, without a neutral and effective organization, there is little to gain for the region as a whole. Of course, individual countries can still press ahead in developing their own infrastructure and services, but the region may never be able to realize its vast potential and achieve its original goal of becoming one of the important trade zones of the world.

BARRIERS

There are serious barriers to the proposed telecom development initiative in the region, which may account for the slow progress since TRADP began in the early 1990s. Among others, the following barriers (or sources of barriers) have been identified.

Regional Governments

The Northeast Asian region represents the most disparate characteristics in political regimes, social ideologies, and business environments. Clearly, doing business in this context can provoke resentment and resistance from the region's countries, as a potential threat to internal stability and potential gains. It is also possible that bilateral cooperation is perceived as interference in a country's sovereignty and power. During the years TRADP has been in existence, there have been numerous occasions when hostile attitudes and tensions hampered well planned events and frustrated participants from some countries. Unfortunately, there is no quick remedy to this problem. The exercise of political shrewdness and an ad hoc approach are highly recommended.

Another barrier from governments is gesture support with little substance. After eight years of development, it appears that most governments are trying not to be directly involved but adopting a "wait-and-see" attitude toward TRADP. This is typically reflected in the commitment to financial support and granting

more administrative power to local authorities in the region. Because of this, many critical issues cannot be resolved during regional meetings. They stop short—with ideas on paper, but little action ensuing. It appears that some governments have low confidence in the region's development program and do not want to commit substantial resources.

Regulatory Environment

Given the diversity of the region, telecom regulation is expected to become a major concern if all the countries support a regional program. This can be especially problematic if a cross-region agency is to be formed and a new policy adopted. There is a strong likelihood that the new policy will be different from an existing domestic framework, which can easily become the subject of disputes. It is too early to speculate how the agency would be set up and what policy orientation it would use. But areas of service jurisdiction, pricing, and responsibility will likely become the focus of future debates.

Conflict of Interest

In addition, a development program in the region may be perceived to be interfering with domestic priorities. This is especially the case in the region's developing countries that have an "inward" focus, whereas the regional program is often thought of as an external issue initiated by international interests, which are often treated as a lower priority. For those countries, domestic development will continue to be the major focus that dictates government attention, allocation of resources, and technological advancement. Unfortunately, after eight years of development, the region itself is yet to stand out as a compelling reason to change this perception in the minds of the region's governments. Given the current extent of development, it is likely that the countries will give domestic issues more attention when there is a conflict with the region's programs.

Finally, there are other potential barriers that can significantly affect implementation of telecom development in the region. Besides the weak demand for services as analyzed in this paper, the general economic development is the essential driving force. At present, trade (volume and value) in and out of the region is low, compared with other regional centers, despite rapid growth in the past. That may affect ancillary sectors such as energy, transportation, tourism, housing, and education, which are all important sources for telecom services. Moreover, given the region's economic foundation, it is more vulnerable to economic downturns when trade decreases and investors stay away, because of concerns about returns.