

Information Superhighway, Japanese Style

By Maeno Kazuhisa

Japan is currently engaged in a heated debate over a plan to establish a next-generation communications network. This fervor revolves around how best to construct a telecommunications system for the 21st century.

There is a common saying: When the United States sneezes, Japan catches a cold. Earlier this year, U.S. President Clinton stated, "We endorse the appreciation of the yen," which amounted to an endorsement of a depreciation of the dollar. With an exchange rate of around ¥110 to the dollar, the yen has never been so strong. Economically, Japan has become a power that is on a par with the U.S., yet this common saying about the U.S. and Japan is still very much alive. Likewise, in Japan's scheming for a next-generation communications network, the same pattern is being followed.

The plan for Japan to build this network stems from a proposal U.S. Vice President Albert Gore made shortly after taking office. His plan is "... to build, by 2015, a high-speed telecommunications highway that would connect the states across the U.S. in an information transmission network for the next generation." For an agricultural/industrial society, the circuit commonly used for transporting commodities has been highways. But for the upcoming information society, information as a commodity will be transported via telecommunications networks.

American interstate highways, it is said, were first proposed by Vice President Gore's father who, at the time, was a senator. Gore, following in his father's footsteps, called for building highways for the information society, e.g. an "interstate information superhighway." The plan calls for the building of a broadband integrated services digital network (B-ISDN) across the U.S. using optical cables.

Japan was ahead of the U.S. in establishing a nationwide ISDN system, the most updated system in telecommunications. The transmission used for conventional communications systems is in analog format, involving transmitting data

through copper cables. In the ISDN system, data is numericalized and transmitted by laser, using fiber-optic cables made of fiber glass, through digital exchanges. B-ISDN, unlike the analog system which requires separate communications lines for telegraph, telephone, fax and data communications, provides for an integrated communications network which uses a single channel of fiber-optic cables. And because it is said to be capable of transmitting color images (video), the system can also be used for color TV telephones.

Japan, in the days of Nippon Telegraph and Telephone Public Corporation, started building the ISDN system using the name Information Network System (INS). In the main cities on the Japanese archipelago, arterial networks were laid and since 1988 the company has been providing Japan with circuit lines called INS Net 64 and INS Net 1500. One theory has it that the popularization of telecommunications services must be in proportion to a particular nation's GNP, and for the upcoming information society, the telecommunications network is an indispensable infrastructure that provides the technical basis for the new society.

Because Japan uses the N-ISDN (narrowband integrated services digital network) system, Vice President Gore suggested the B-ISDN system which is 1,000 times more powerful in data transmission and reception and can transmit TV broadcasts via the same circuits.

Jurisdictional dispute

Meanwhile, in Japan, as a means to pump-prime the sluggish economy, Mori Yoshiro, minister for the Ministry of International Trade and Industry (MITI), suggested, "Japan should build a nationwide fiber-optic system as a next-generation communications network." As for funding, he stated at a press conference that "it should come from construction bonds." With the combined-recession, sales of telecommunications and data processing related products have been slow. While Minister Mori's view is in compli-



Mori Yoshiro, MITI minister, has proposed the construction of a nationwide fiber-optic system to meet the next generation's telecommunications needs.

ance with the wishes of the Communications Industry Association of Japan, his statement became the spark plug that started a heated dispute between political, financial and administrative circles.

As mentioned before, Vice President Gore proposed the use of publicly-raised funds to construct optical cable networks across the U.S. While the building of telecommunications systems is accepted in the U.S. as a public works project, the situation is different in Japan. Projects eligible for construction bonds, according to guidelines set by the Ministry of Finance (MOF), are limited to future-generation projects that are semi-permanent. It follows that the main targets are public works such as highways and sewerage. The development of a telecommunications network is not eligible for public funds since it is not considered a public works project. This goes to show how backward the Japanese government is.

Officials at the Ministry of Posts and Telecommunications (MPT), responsible for the development of telecommunications, are familiar with the hitherto attitude of the Finance Ministry. But before they could propose that the telecom plan should be included in construction bonds, MITI beat them to it. Since telecommunications come under the jurisdiction of the MPT, the officials there, in a big flurry, decided at the last minute in mid-March to refer to the Telecommunications Council, an advisory panel to the ministry, a rec-

ommendation on what should be the 21st-century telecommunications system and how such a system can be established.

This marked the beginning of MPT's counterattack. In the past, MPT and MITI have been in constant disagreement. And today, over fiber-optic networks, the two ministries are again engaged in a dispute. As will be mentioned further on, to MPT, ever since the privatization of Nippon Telegraph and Telephone Public Corporation in 1985, Nippon Telegraph and Telephone Corporation (NTT) is nothing more than one of many private telecommunications companies. Worse yet, the company has been plagued by competition from newcomers in the market and is suffering from an unfavorable business climate. MPT feels that they cannot trust to NTT the building of a next-generation telecommunications network, a system which will play a decisive role in the 21st-century economy of Japan.

MPT launched a plan to organize a public corporation to be in charge of the entire project and have NTT and other telecommunications companies compete in the supply of cables for the network. This plan has been met with keen opposition from MITI which openly argues that the privatization of NTT had been a painstaking effort. Organizing a public corporation will only defeat the purpose of the privatization reform aimed at improving business effectiveness. But the ministry's true motive, as is widely discussed among people involved, is in trying to prevent a MPT-influenced public corporation from being organized, as the existence of such an organization will only intensify its dispute with MPT. Meanwhile, the Finance Ministry is also against MPT's proposal, saying that the plan to organize a public corporation will only dig further into tax revenues and governmental bonds. This, MOF fears, may lead to a crisis in the nation's finances.

At this juncture NTT came out and announced, "As long as there is capital, we can do it with our own hands just as we have always done." NTT's business performance has declined since the New Common Carriers entered the telecommunications market. Because NTT had applied for a price-hike with MPT earlier, the ministry looked at the company's gesture merely as an excuse to open up the issue again.

NTT's hidden motive

Following the liberalization of the telecommunications market in 1985, breaking the monopoly held by the then Nippon Telegraph and Telephone Public Corporation, new enterprises, one after another, entered the market. Three newcomers have entered the long-distance telecommunications business: Daini-Denden Inc. (DDI), founded by Kyocera, Sony and three other companies; Japan Telecom, in which the now defunct Japanese National Railways was a major shareholder; and Nippon Kosoku Tsushin (Teleway Japan), backed by the Japan Highway Public Corporation and automobile manufacturers.

NTT's long-distance telephone charges are higher than in the U.S. MPT's tactic in the privatization process was to allow new firms to enter the market bringing prices down through competition. MPT initiated this competition setting the starting rate at about 30% cheaper than that of NTT. The result was that within seven years phone charges have decreased four times. Take, for example, a three-minute call between Tokyo and Osaka. While NTT charged ¥400 seven years ago, now it only charges ¥200. The new firms started at ¥300, but now charge only ¥180 for the same service. For telephone users this is indeed a big plus.

But for NTT, business began to deteriorate. For service between Tokyo and Osaka, which is a major money maker, the New Common Carriers are now in possession of as much as 53% of the business shares. For fiscal 1992, NTT closed its accounts with a ¥102.7 billion short fall in current profits, originally projected at ¥351 billion.

NTT went to MPT saying that the company's telephone billing system has been such that profits gained in long-distance phone billing are used to cover deficits incurred for local telephone bills. Owing to a drop in profits in long-distance calls, NTT requested a price hike in local calls to adjust for this imbalance. But MPT rejected the request, saying, "... deterioration in your long-distance phone business is due to taking too much profit over the years, this cannot be a reason for your price hike. Why don't you develop new services to make up

for your declining business?"

In Japan, the (average) length of time used in telephoning per line per day is a little less than 12 minutes—one-third of that in the U.S. Although the number of telephones has increased to 55 million, they are left idle for 23 hours and 48 minutes per day, a great loss to the nation. While MPT maintains that NTT should "diversify services and try to make people use the phone more as a way to raise profits," NTT retorts with "local phone bills must be raised for business improvements." MPT then charged NTT with lobbying aggressively among Diet members, trying to influence the Liberal Democratic Party's Post and Telecommunications "clan"—people who are influential in the administrative affairs of MPT. The ministry and NTT became even more antagonistic and the former insists that it will not grant NTT its wishes to raise local phone bills.

The Finance Ministry and MITI have now added fuel to the fire. MOF holds two-thirds of NTT's shares and this ministry, partially motivated by a desire to raise share prices, is eager for NTT to raise phone prices. Meanwhile, MITI feels strongly that NTT should be in charge of building the next-generation communications network. The result is a complicated



The intent of a new telecommunications network for the next generation, if completed, is faster communication for less money.

situation where interests of the involved ministries are intertwined.

No need for two antennas

While the dispute over the selection of a main builder for the next-generation communications network continues, so far the issue on how the communications circuit should be used is being completely ignored. Because B-ISDN is capable of transmitting enormous quantities of data, the circuit can be used not only for transmissions of telephoning and communications, but also transmissions and receptions of color TV broadcasts via the existing air waves.

MPT began its telecom administration by making a distinction between communications and broadcasts. Communication is defined as "limited, small volume of communications" whereas broadcast is "unlimited transmissions of large quantities of data." Because MPT treats the two as different kinds of communications, the ministry has set up two separate organizations, the Communications Policy Bureau and the Telecommunications Bureau, to deal with the category of communications. The result is that for satellite TV broadcasts, the broadcasters often have to make use of two different kinds of satellites—a communications satellite and a broadcast satellite—for their transmissions. Consequently, broadcast subscribers have to buy two separate antennas.

Ten years ago, when the first broadcast satellites were launched, reception was poor and there was the need to specify that broadcast satellites must be more powerful than communications satellites. Now, with the advance of technology, it is believed that it is no longer necessary to distinguish between communications satellites and broadcast satellites.

In addition, facsimile transmissions once could only be used on a one-to-one basis with the receiving party restricted to one fixed location. Now, technology has improved to such an extent that one fax machine can be used to send transmissions to several hundred parties. In other words, communications is increasingly moving towards the form of broadcast. As mentioned before, because B-ISDN can be used to transmit animated color TV images via fiber-optic networks, there is the sentiment that the time has come for

Telecom-related Chronology (1837-1993)

Japan:	United States:
	1837 Invention of Morse telegraph (S.F.B. Morse)
1869 Telegraph service started between Tokyo and Yokohama	
1889 Telephone service began	1876 Invention of telephone (A.G. Bell)
	1906 First international experimental radio broadcast
	1920 Radio broadcast business began (in Pittsburgh)
1925 Radio broadcasts began	1939 TV broadcasts began
	1946 World's first computer—ENIAC (electronic numerical integrator and calculator)
	1948 Invention of transistor
	1951 Standard system for color TV broadcasts decided
1953 TV broadcasts began	
1957 Invention of the semiconductor laser (Nishizawa Junichi)	
1960 Color TV broadcasts began	1958 Paging service (Bellboy Service) began
	1960 Launching of communications satellite Echo 1
	1963 First TV relay broadcast between Japan and U.S. via satellite
1964 Invention of optic fiber (Nishizawa Junichi)	
	1972 CCITT (Comité Consultatif International Télégraphique et Téléphonique) proposed IDN and ISDN systems
1968 Paging service (Pocket-bell) started	
1973 Telephone facsimile service started	1973 VAN (value-added network) system commercialized
1981 NTT announced INS (ISDN) plan	
1982 VAN service started	
1983 Utility communications satellite launched	
1984 Utility broadcast satellite launched	1984 Deregulation of AT&T
1985 Privatization of telecommunications market	
1987 24-hour satellite broadcast service started (NHK)	
1988 NTT began INS service	
1989 NHK began experimental broadcast of high-definition television (HDTV)	
1990 NTT announced plan for B-ISDN	
1992 CS television broadcast began	1991 NTIA announced proposal for telecommunications policy
Feb.1993 Finance minister announced plan for optical cable network	Jan. 1993 Gore's announcement of "Information Superhighway"
	May 1993 Standardization of digital system for HDTV is proposed to FCC

MPT to review its policy of treating communications and broadcasts as separate entities.

That is why MPT has decided to bring the issue up to the Telecommunications Council. Recommendations are to be submitted by the council by next March. In Japan there is the high probability that a new communications legislation will be drafted similar to the U.S. In America, the

Federal Communications Commission (FCC) has already granted permission for a new service called Video Dial Tone which uses telephone circuits to broadcast TV. It looks like Japan will again follow suit. JJI

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