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Who Will Win in the End?

Interview with Rep. Hiroyuki Arai, Director,
Communications Division, Policy Research Council,
Liberal Democratic Party (LDP)

Hiroyuki Arai, a member of the House of Representatives, has long been involved in a variety of activities related to info-communications. He has been chairing the NEW-WIC (New Welfare Information Communications), and directing the Communications Division of the LDP's Policy Research Council. At the House of Representatives, he is a member of directors of its Communications Committee. As a high-tech wizard, he is the person who is vigorously promoting information technology (IT) in Japan. But on the other hand, he always keeps in his mind that IT is just a tool for improving our lives. "People should not be used by IT, but we should use IT for improving the quality of our lives," he said.



Rep. Hiroyuki Arai

Japanese Companies Struggling for Entry into the BS Digital Market

By Yaeko Mitsumori

BS digital broadcasting is scheduled to commence from December 2000 in Japan.

Among a variety of services to be launched with the new platform, digital data broadcasting service is gaining the most attention. By getting connected to the STB (set-top box) with a telephone line, a TV set that used to be a terminal just for receiving TV programs will be transformed into an interactive communications tool.

At the end of 1999, MPT selected eight broadcasters as providers of the interactive services. These selected broadcasters are gearing up their efforts to provide attractive services.

The screening was a tough job for MPT. Targeting only 12 slots available,

a total of 28 company groups submitted their applications for a total of 57 slots by the end of October 1999, the deadline for applications.

Before MPT started accepting the applications, market watchers said only a few firms would apply because the time available until launch of this new business was too short and the marketability of the data broadcasting has not been proven.

But at the last minute, an unexpectedly large number of candidates applied with MPT for a license.

Since MPT had declared that it would place first priority on new entrants, a variety of businesses including manufacturers, trading firms, distributors, travel agencies and publishers applied

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TT: The Japan-U.S. talks over NTT's interconnection charges held on January 18 to 19 in Washington D.C. failed to reach an agreement.

Arai: Since gaps between Japan and the U.S. over the issue were so wide, we failed to reach an agreement. But the government will continuously open our channel for discussion over the issue with the U.S. counterpart (U.S. Trade Representative). We are scheduled to compile a report over the deregulation issues including the interconnection charges by the end of March 2000. So our understanding is "we still have time by the deadline."

TT: According to some reports, the U.S. government is planning to bring the issue to the WTO's panel.

Arai: The U.S. side did not say that they have a plan to bring the issue to the dispute arbitration panel of WTO. I think both sides should continue talks over the issue until the deadline.

TT: Won't the Japanese side change its position over the issue?

Arai: The Japanese delegation's proposal was that Japan would decrease the interconnection charges by 22.5% for four years. When the interconnection charges are decreased by 22.5%, NTT's revenues from interconnection business in fiscal 2004 will shrink from 1.06 trillion yen (under the current system) to 480 billion yen (when the 22.5% down was introduced). That means NCCs will get much benefit, but NTT will receive significant negative impact on its business. The U.S. counterpart demanded Japan introduce so-called Case B, which requires a 41.1% decrease immediately. But I don't think we can change our stance if we consider the impact.

TT: The U.S. side argued that Japanese position is infringing the Birmingham Agreement, which was concluded between Japan and the U.S. at the time of Birmingham Summit in 1998.

Arai: We offered significant compromise from so-called Case A. The Case A originally offered a 16.7% down in the interconnection charges. If Japan employs Case B as the U.S. counterpart demands, then NTT should have some difficulties to maintain universal services; NTT should increase basic monthly charges for end-users; and NTT's business achievement should get destructive damage. Furthermore, I heard that in the U.S., only Competitive Local Exchange Carriers (CLECs) in some states are employing the Long Run Incremental Cost (LRIC) model. If the U.S. demands Japan employ the LRIC, then the U.S. should employ the LRIC.

TT: NTT was divided into four companies in July 1999 and NTT Communications Corp., one of the four

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ISP: @nifty, BIGLOBE or NTT?

As the Internet business expands rapidly, competition among ISPs have become more intense. Fujitsu Ltd. merged its Nifty Serve with Infoweb and launched the nation's largest service, @nifty, targeting the 10-million subscriptions figure. To defeat its rival, NEC Corp. has strengthened its BIGLOBE by earmarking 30 billion yen. Meanwhile, the NTT Group is offering OCN at a lower charge while rapidly gaining more customers for its iMode services. Thus, the ISP market is entering the "grand melee" era.

Commercial Internet service was first launched in Japan in 1993. Many ISPs

have launched their Internet access services since 1994. Internet subscriptions have expanded rapidly following the release of Windows 95 here in 1996. For the past four years, the number of subscribers has approached nearly 20 million.

According to the MPT's White Paper in FY1999, there are more than 3,000 ISPs in Japan. In 1999 alone, 744 ISPs joined the already competitive market.

Market watchers, however, said that only large ISPs may be able to survive. It is because in order to provide satisfactory services to their customers, ISPs

have to continuously pour in a large amount of money for constructing new access points and increase the capacity of their networks. Such expansion of their facilities will eventually push up the number of users, which will again force them to pour more money into their facilities.

On the other hand, Internet access charges have been dropping due to harsh competition among ISPs. Due to these reasons, only ISPs with large financial resources are believed to be strong enough for survival in the Japanese

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Rep. Arai:*Continued from Page 1*

firms, launched international telecommunications services. But some NCCs complained that since NTT Com offers big discount such as up to 80 to 90% on their service fully utilizing its huge financial background from the NTT Group, other smaller telecommunications carriers can not compete with the big NTT firm. They said there is no fair competition in the Japanese market.

Arai: I think there should be some appropriate measures in the telecommunications market in order to maintain fair competition within the market.

TT: In the mobile market, NTT DoCoMo, a subsidiary of NTT, has 51% of the market share. Some NCCs said NTT DoCoMo is a dominant carrier.

Arai: The government will review interconnection systems including ones between NTT DoCoMo and other carriers in fiscal 2000 (ending at the end of March 2001.) The government will decide whether NTT DoCoMo is a dominant carrier or not after hearing from all relevant business and closely examining the present interconnection systems.

TT: The U.S. government is imposing the benchmark system. And I heard that Japanese government is complaining about that.

Arai: The benchmark is virtually a non-tariff barrier for Japanese companies to enter the U.S. market. Service charges should be decided by the market; however, the U.S. government unilaterally decided the service price and is imposing them on other nations. Such practice does not go with the spirit of the WTO. The Japanese government believes the U.S. government should abolish the benchmark immediately.

TT: Will the Japanese government bring the case to the WTO's panel?

Arai: I think that we should discuss the issue before we decide to bring the issue to the WTO.

TT: Over the Right of the Way issue, the Ministry of Foreign Affairs invited public opinions. What will the government do after that?

Arai: We have received many complaints regarding the Right of the Way issue. Since a variety of businesses and industries are being involved in the issue, the government organized an inter-ministry body two years ago. In March 1999, the body compiled a report about the current status of the Right of the Way and put it on the Internet. Between December 1999 and January 2000, the Foreign Ministry representing the body accepted public opinions, and based on these opinions, the body will review the current status. Since the issue is important for promoting construction of communications infrastructure, which eventually push down end users charges, we keenly hope that the issue will be improved.

TT: After the body submits the review result, will the government require or encourage businesses to carry out certain measures?

Arai: I believe so.

TT: Due to development of technology, broadcasting and communications have been merged each other.

Arai: Right. At present broadcasting is regulated by the Broadcasting Law, but the law has been out of date. There are many gray zones between broadcasting and communications. It's time for the government to launch discussion over the issue.

TT: In Japan BS digital broadcasting will be launched in December

2000. The government said that the BS digital would get 10 million subscribers within three years.

Arai: I believe that the number of subscribers of BS digital broadcasting will increase rapidly. In Japan, terrestrial broadcasting will be replaced with BS digital system by 2010. Japan will be the most advanced nation in the world regarding digitalization of broadcasting.

TT: The government is providing subsidies for communications venture companies as part of its effort to revitalize gloomy Japanese economy.

Arai: Right now, businesses related to information and communications have been expanding rapidly. It is the locomotive for the Japanese economy. There are some discussions that since the market will develop such types of business, the government does not need to help them. But these businesses are emerging now: I think the government should reach out with a helping hand to them. One of the reasons we think we need to help them is because Japanese business in the area has been lagging behind the U.S.

TT: What particular measures have been taken?

Arai: The government launched "Telecom Venture Investment Fund" in October 1999. The fund will finance venture businesses up to 10% of their total capital. So far, four firms are using the system. The government is also providing support for venture firms utilizing the Stock Option System. Under the commercial law, firms can provide stock option preference measures to its employees up to 10% of its capital. But in case of communications or broadcasting business that are approved by the relevant regulations, up to 20% of their stakes can be provided as stock

option. In fiscal 1999, the government will establish the information communications venture support center over the Internet. Through the web site, users will be able to get relevant advice and instruction for establishing and developing a new enterprise over the net.

TT: Due to the administrative reform process, MPT will become a part of the "Somusho" or Management and Coordination Ministry.

Arai: Right. The telecommunications business that MPT is currently in charge will be shifted to the new ministry. At present, three bureaus of MPT are dealing with telecommunications business. However, at the Somusho, two bureaus will deal with telecommunications business: the information communication policy bureau and the comprehensive communications infrastructure bureau. Each bureau will have 14 divisions.

TT: You have been taking a leading role for making policies in the telecommunications area. What is your philosophy in dealing with info-communications technology?

Arai: What I have been keeping in mind is that communications technology is very important but it is still only a tool. We should not be used by the technology. We should use the technology for improving our lives.

Profile

Born: 1958
1982: Graduated from Waseda University
1983: Fukushima Prefectural Assembly member
1993: A member of the House of Representatives
1996: A member of the House of Representatives (second term)

Carrier News**NTT DoCoMo****To Launch Navigation Service for Pedestrians Using Enhanced GPS Technology**

NTT Mobile Communications Network, Inc. (NTT DoCoMo) applied to Japan's Minister of Post and Telecommunications for permission to launch the world's first pedestrian navigation service based on the enhanced global positioning system (GPS) technology of Snap Track, Inc., a U.S. high-tech firm. The service, dubbed "Doco-Navi," will be launched nationwide on January 14 pending ministry approval. A service-compatible terminal, dubbed "Naviewn," will go on sale from the same date in the Kanto-koshinetsu region, with sales in other regions to follow. Snap Track's enhanced GPS technology will allow DoCoMo handset users to receive precise location information even in crowded downtown areas. Such a feat is difficult with conventional GPS. Doco-Navi provides real-time route guidance to users. It also features concierge-like services that guide the user to points of interest and conveniences, such as restaurants, banks, stores, hospitals etc. More than 210,000 useful sites are available to users who access a location information service center via the terminal.

The monthly subscription fee for the service will be 400 yen (not including cost of call to information service center). However, the fee will be waived from January 14, 2000 to March 31,

2000 in order to attract users to the new service.

NTT Communications Expands International Free Dial Service Area

NTT Communications Corp. (NTT Com) will add the People's Republic of China to its International Free Dial service area as of January 11, 2000. This service enables callers abroad to dial certain predesignated telephone numbers in Japan, with the applicable charges to be billed to the receiver in Japan. This International Free Dial service had initially been applied to the U.S. and the Republic of Korea.

With this expansion of the service, callers using the Universal Free Number service will be able to dial the same number from the U.S., South Korea and China. However, the access code (first 2 or 3 digits) might differ according to the caller's country.

NTT Com is planning to expand the International Free Dial service to other countries in response to customer demand.

NTT DoCoMo/Matsushita Communication Forming New Company to Launch Music Distribution Service

NTT DoCoMo and Matsushita Communication Industrial Co., Ltd. will establish a new company to distribute music via NTT DoCoMo's PHS and cellular phone networks. The new com-

pany, dubbed Air Media Inc., will be set up early in February 2000. NTT DoCoMo will own 51% of the new venture and Matsushita Communication will own the rest.

Air Media will begin testing its new Mobile Media Distribution Service (MMD service) from April. A free trial service will begin the following month, with an aim to launch a commercially based MMD service -- using a 64 kbps PHS data communications network -- from the fall. Air Media is also planning to distribute music via a next-generation mobile telecommunications system that is based on wideband CDMA (W-CDMA) technology.

MMD will allow mobile phone users to download and sample songs, as well as access concert schedules and other music-related information from various content holders. Users can also enjoy interactive programs by responding to music popularity polls and taking part in other activities.

IT Industry**JVC****"VHS Clear" Cassette Specifications Standardized**

VHS Cassette Evolves from Black to Color and even Transparent Versions
Victor Company of Japan, Ltd. (JVC) has developed technical specifications for "VHS Clear" cassettes and added them to the VHS system standards. The new specifications will enable the VHS video cassette, the premiere video

recording media in markets around the world, to be produced with transparent housings. VHS cassettes have traditionally been manufactured in black or dark colors because the VHS system uses photo sensors to detect the end of the tape, and brightly colored and transparent packages can cause malfunctions. Recent years, however, have seen more colorful personal computers and audio equipment come on the market and gain widespread support. As home products become more colorful and fashion-oriented, users and artists alike are seeking color and transparent VHS cassettes. JVC has investigated the technology for achieving these demands, and has successfully developed the technology to prevent hardware malfunctions by adding a light shade to the body of the VHS cassette.

The new "VHS Clear" cassette standard will enable more colorful, fashionable blank and prerecorded VHS cassettes to be delivered to the world's markets, adding yet another dimension to the VHS system and making significant contributions to the invigoration of this market.



Corporate Networks Are Heading for IP Network

By Yaeko Mitsumori

Corporate users are shifting their intra-company networks from conventional ones to IP networks. Most of the corporate users were subscribing to high-speed digital leased lines until mid-1990s. Seeking for less expensive ones, these firms have shifted to frame relay, cell relay or ATM leased lines since mid-1990s. But now these corporate users are moving to much less expensive IP networks.

IP networks for corporate users are closed networks based on Internet protocol. At present, some carriers such as NTT Communications Corp., Japan Telecom Co., Ltd. and NTT-ME Corp. are providing the IP network services for corporate users.

Other carriers are planning to launch IP services this year.

On is PNJ Communications, Inc. (PNJ-C), established jointly by Tokyo Telecommunications Network Co., Ltd., Chubu Telecommunications Co., Inc. and Osaka Media Port Corp. The company is scheduled to launch the IP network service for corporate users in the summer of 2000. KDD Corp., which is now constructing an IP-based backbone network, is also going to launch an IP network service by the end of FY 1999. DDI Corp., which is scheduled to take over KDD in October 2000, is planning to launch a similar service in the summer of 2000.

Three pioneering firms -- NTT Com, JT and NTT-ME -- are planning to provide a further variety of services late in 2000. IP networks seem to penetrated more firms this year.

Some carriers will launch new services using MPLS (multi-protocol label switching) technology. The MPLS is a technology for realizing increased security level of the network. In the MPLS network, each packet is given a label at the entrance of the network, and goes

through the network at a higher speed because they are identified not with the IP address but with the label.

NTT Com is scheduled to launch MPLS Network Services in the first quarter of FY2000, at speeds ranging from 64 kbps to 135 Mbps depending on the choice of access lines of customers.

JT will launch IP network based on its next generation backbone network called PRISM in April 2000. JT is also planning to employ the MPLS technology to increase its security.

According to Kazunori Ishii, a KDD spokesperson, the carrier is also considering to employ MPLS in the future. NTT-ME is providing IP services "XePhion" using a different technology called GMN-CL.

PNJ-C is going to launch high-speed IP network services at a speed of 100 Mbps using Ethernet interface in the summer of 2000. To prepare for the services, the three regional carriers of the PNJ-C will connect their backbone networks with WDM switches by this March. Seven other regional carriers plan to join the PNJ-C when it is ready to launch the nationwide IP services.

DDI is planning to promote its IP network services in three phases: First it will offer interconnection services linking its IP networks with its frame relay and cell relay networks by the end of 2000. Then it will launch IP telephony services by the end of 2001, and at last it will launch interconnection services linking its IP telephony networks and conventional telephone lines by the end of 2002. But a DDI spokesperson said that the plan may be revised due to recently announced M&A plan with KDD and IDO Corp. JT is also planning to launch IP telephony services by the end of 2000 using the PRISM.

Meanwhile, Open Business Network (OBN) is winning attention as a next generation integrated service.

The OBN was jointly developed by The Distribution Systems Research Institute, a foundation under the Ministry of International Trade and Industry, and Prof. Shoji Miyaguchi of Shibaura Institute of Technology.

According to Hisao Furukawa, Assistant General Manager of the Institute, OBN, an IP based network, is the optimal solution because it is less expensive than legacy networks; but unlike ordinary Internet, the OBN is relatively strong against hacking or other illegal practices.

NTT Com, JT and NTT PC Communications Inc. are providing OBN services, and some large retail businesses such as Daiei Inc. are using the services. NTT Com, JT and NTT PC Communications are scheduled to increase the data communications speed up to 150 Mbps and will add telephony services on their OBN services in August 2000.

When the telephony service is launched, not only intra-company lines but also ordinary subscribers lines outside the firm will be connected to the OBN system, allowing company users to talk with outside callers through a gateway server.

Since profits from voice services in both domestic and international markets have been shrinking, most of the carriers are shifting their business focus from voice to data communications services. In order to secure high-speed data communications services, all carriers are increasing their backbone networks' communications speed.

When the backbone networks' communications speed increases, the charge per bit drops. This is good news for customers because their payment will shrink by simply shifting from conventional networks to the new IP-based networks. Carriers are also encouraging their customers to shift to IP networks.

Tomoyuki Matsumoto, a spokesman of PNJ-C, said that he thinks most of its customers will eventually shift from conventional leased line networks to IP networks. However, the firm will continue to provide legacy leased line networks for some customers, for instance, who need extremely high security. When all corporate users shift to integrated IP networks, then carriers may be forced to change their charging systems.

At present carriers charge for each service such as telephony, ISDN, leased

lines and Internet access services. But in the integrated IP network era, carriers may send out one bill annually for all related services including communications network usage, rents for servers and routers as well as SI services. Some Type II carriers whose prices are not controlled by MPT already introduced such a charging system.

There are still some factors that may hold back these corporate users from rushing into migration towards integrated networks: quality of services, reduction in conventional network service charges and regional price discrepancies in access lines.

In order to provide satisfactory services for their users, carriers are expanding the capacity of their backbone networks. By doing so, carriers try to provide "high quality" services to their customers. But in the IP world, carriers cannot guarantee the "high quality" services end-to-end. Some market watchers pointed out that choosy Japanese firms may not accept such a concept.

Since conventional communications service prices are expected to decline further, corporate users do not need to shift to IP networks in order to slash their communications costs. NTT-ME launched inexpensive flat-rate data communications services using ADSL in December 1999. Some other carriers such as DDI, KDD and JT are planning to launch similar ADSL services very soon. KDD is going to reduce the charges for cell relay services, that is believed to be followed by other carriers. Sony Corp. will launch flat-rate data communications services using WLL in late 2000.

Prices for conventional services seem to drop further. Then corporate users which care more about the quality of communications rather than their bill may choose to stay with conventional services rather than shifting to IP networks whose quality remains questionable.

Another factor is discrepancies in communications charges between urban and rural areas. While new services are going to be launched in urban areas and their networks are upgraded rapidly, rural areas tend to be left intact. As a result, gaps in communications prices in urban and rural areas will expand. Then large companies which have branches in every part of Japan may hesitate to migrate towards IP networks.

If carriers successfully develop technologies to guarantee the quality of IP network services, push down charges of IP networks past the conventional networks' level and upgrade access lines nationwide, then the smooth migration toward IP networks will be realized.

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X

Four Japanese Firms to Use RF-ID System for Management of "Digiassets"

by K. Anthony

Electronics giant Hitachi, music distributor Nippon Columbia, game manufacturer Sega Enterprises and a Tokyo-based venture business have jointly developed a system for tracking distribution of digital contents through use of RF-ID. All types of digital contents, whether they be software programs or text data, can be tracked using a DVD and the non-contact ID method.

The new system entails the embedding of an encoded RF-ID chip into the DVD, thereby enabling music and game information to be simultaneously tracked

and distributed. This is accomplished by having the consumer "sample" a portion of the desired data before selecting the entire data for purchase over the Internet. The use of the RF-ID chip prevents illegal copies being made as the chip uses a separate encoding system. The system is also seen being applied to the general publishing as well as advertisement fields. Moreover, according to industry analyst Harry Arnsmeier, this system will enhance DVD use even further while making management of digital assets (which he and his colleagues refer to as "digiassets" -- their trademark word) easier, since it ensures that the copyrights are protected.

Net Car Dealer

More Cars Go over the Net;

Entrance of U.S. Net Dealers Adds Fuel to the Competition

By Yaeko Mitsumori

The Internet is changing the Japanese automobile sales market. Japanese cars have been sold under "keiretsu" system, which brings together a group of firms in the car industry under automobile makers. But recently more net dealers, who are free from the system, are entering the market, forcing the industry to change its structure.

Net car dealing has been welcomed by customers because they deal with a wider variety of models regardless of the maker and are selling at a lower price. One peculiar net dealer with merely three sales persons is selling 100 cars a month. Conversely, Automobile manufacturers are also entering the Internet business.

It is said that in the U.S. up to 30% of the cars are now sold over the network. In Japan, small venture businesses started selling their cars over the net a couple of years ago. However, the net car dealer era has at last arrived in Japan when two big U.S. car dealing portal sites -- "CarPoint" by Microsoft Corp. and "Autobytel" by Autobytel Com Inc.-- opened their Japanese versions in November 1999.

Internet car dealing gives advantage to buyers: Buyers can purchase a car anytime, even midnight, after carefully examining the listed cars spending as much as time they like. All net dealers list up all necessary information about cars on their web sites: maker, model, price, color and options. Buyers can select what they want using a search engine.

Also buyers can choose a car without being bothered by any nuisance sales talks of dealers. Furthermore, prices are usually lower over the net compared with conventional sales channels.

But due to nature of the Internet, net buyers may have to be cautious. Both new and used cars are being dealt over the Internet. In case of new cars, makers provide their standard prices. So, buyers easily guess the average prices. However, in case of pre-owned cars, conditions are different car by car. Buyers have to check the conditions by themselves some way.

Actually there are several types of net car dealers: some net dealers open their own web site, selling cars to buyers directly over the net; and some others just introduce a nearby dealer to their client.

Some other net dealers negotiate with dealers over the purchasing prices and/or other services for their clients. These net dealers have to recover the negotiating fees, so buyers may have to be careful about the prices.

Although net dealers are free from keiretsu of automobile makers, they still have to get cars from keiretsu dealers. So most of net dealers try to keep good relationships with keiretsu dealers.

Keiretsu dealers are working under the franchise system. Each dealer sells its cars only within their franchise. However, net dealers do not need to care about the franchise system. Through the network, net dealers can sell their car to any customer in any part of Japan.

Nonetheless, most of Japanese net dealers are following the franchise system. One exception is "Quick," the net dealer selling 100 cars a month with three sales people.

Quick introduces any car of any dealer in any location for its customers. For instance, Quick may introduce a car dealer in Hokkaido to a Tokyo client. When a customer in Tokyo purchases a car from Hokkaido, the customer has to bear the transportation cost from Hokkaido to Tokyo. But some customers often choose the far away dealer when the far away dealer's price including the transportation cost is lower than their nearby dealers. According to Osamu Sato, president of Quick, their prices are lower than conventional dealers or other net dealers, because Quick does not have any shops nor many sales people. There are only three sales people at Quick. Quick also pushes down its prices by feed backing sales data to automobile makers and selling ads on the web site.

Unlike other conventional dealers or net dealers, Quick does not offer any discount for its customers. In other words, it puts the final price list on its web page and customers simply compare the final prices among them and with a nearby dealer.

The firm is targeting to sell 50,000 cars a year, a 1% of the new car sales in Japan, in 2001 at the earliest.

But Sato does not think their sales will expand so rapidly (exceeding his target) unless people's concept toward the Internet changes drastically.

"It is the first time for our customers to purchase a 3 million yen merchandize over the net. When more people are accustomed to such a big shopping over the net, then our sales will expand much more," he said.

Among the intermediary type of net dealers are "Car 24" by Car 24 Inc. on the portal site "e-sekai" run by ASCII Corp. and "Car Life" on the site "ISIZE" run by Recruit Co., Ltd. They introduce a nearby dealer to potential buyers.

Car 24 negotiates with dealers over car prices for buyers. Since Car 24 gets some commission from dealers, their customers do not need to pay for the negotiation process. The dealer said that their prices are still lower than conventional dealers'.

The firm said it is a win-win business model. Because dealers can get more contacts with potential buyers; buyers can compare cars of different automobile makers and purchase at a lower price; and Car 24 can earn commission of 30,000 yen per car when sales contract concludes.

Although the firm has just started its business in November 1999 with seven "professional" dealers, it gets 400 "quote" orders per week. Akio Hirata, President of Car 24, said the firm does not and will not infringe the franchise system because if the firm introduces a far away dealer, then the customer has to bear the expensive transportation fee.

The firm is targeting a net profit of 150-200 million yen in three years.

ISIZE's car section "Car Life" is also taking an intermediary role between customers and dealers. But unlike Car 24, Car Life does not negotiate over prices between dealers and customers. Once Car Life selects and introduces the optimal dealer for the customers following the customer's request, then the dealer and the customer negotiate each other directly. Fully utilizing big financial and manpower of Recruit, Car Life made a complete database containing all necessary data for almost all of the cars circulated in Japan and put the list with their pictures on its web site. Users can search their favorite car with a search engine.

CarPoint and Autobytel Japan introduce a nearby dealer to their customers, by tying up with dealers nationwide (CarPoint has 200 and Autobytel Japan has 800 tie-up dealers). One of the major investors of Autobytel Japan is Recruit. So Car Life and Autobytel Japan are cooperatively promoting sales by exchanging their information.

Meanwhile, automobile manufacturers are entering the Internet sales market.

Major Japanese auto manufacturers such as Toyota Motor Corp., Nissan Motor Co., Ltd., and Honda Motor Co., Ltd., opened their own web sites, and put the information about their cars and a list of their keiretsu dealer shops around the nation. They have not started direct car sales over the net. But they seem to be preparing for launching direct sales in the future.

Nissan concluded business alliance with CarPoint and is encouraging its keiretsu dealers to tie-up with CarPoint. Nissan at the end of 1999 put "Clicker" on its web site through which users can order a quote for a new car or make an appointment for business negotiation with a nearby dealer. Upon the tie-up with CarPoint, Nissan connected the Clicker with the CarPoint system.

Toyota developed "Gazoo," a kiosk with which users can search for new cars and used cars as well as get a quote for repairing cost. Some 600 Gazoo terminals have been installed in Toyota dealer shops as

well as in some convenience stores around the nation. Recently Toyota opened a web site for Gazoo though which users can seek for a favorite car information and a nearby dealer shop.

A national economic paper in Japan reported that Toyota will join an integrated Internet service run by General Motors Corp., and Nissan will join a similar service run by Ford Motor Co. Both Japanese firms denied the reports.

Technical Information Disclosure

Chubu Telecommunications Co., Inc. (CTC)

CTC disclosed technical documents pertaining to its planned "Optical LAN Connection Service (provisional name)" and "2.4-Gbps Digital Line Service (provisional name)" respectively, on January 31. These documents describe interface conditions of terminal equipment to be connected to these service facilities.

Other technical documents (in Japanese only): "High-speed Backbone Service" and "Ethernet Access Service" are also available from CTC.

For further information, contact:
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Osaka Media Port Corp. (OMP)

OMP disclosed technical documents pertaining to its planned "Optical LAN Service (provisional name)" on January 27 and "2.4-Gbps Digital Line Service (provisional name)" on January 30, respectively. These documents describe interface specifications of terminal equipment to be connected to the service facilities.

Those wishing to obtain copies of the documents should provide the following information on a postcard, via fax or e-mail:

- Company name, address, telephone and fax numbers
- Name of person in charge
- E-mail address
- Number of copies (limited to three copies per company free of charge)

For further information, contact:
Osaka Media Port Corp. (OMP)
WCN System Center
5th Fl., Nakanoshima INTES Bldg., 6-2-40, Nakanoshima, Kita-ku, Osaka City, Osaka, 530-0005, Japan
Tel:+81-6-7501-0613
Fax: +81-6-7501-0686
E-mail: tecref@omp.ad.jp
or,
OMP Tokyo Office (regarding 2.4-Gbps Digital Line Service only)
9th Fl., Toranomon Yoshiara Bldg., 1-6-13, Nishi-Shimbashi, Minato-ku, Tokyo, 105-0003, Japan
Tel: +81-3-3508-1146
Fax: +81-3-3508-1148

Tokyo Telecommunication Network Co., Inc. (TTNet)

TTNet disclosed a technical document pertaining to its "2.4-Gbps Digital Line Service (provisional name)," scheduled for launch during fiscal 2000 or later. This service will be available with two transmission line interfaces, STM-16 and OC-48.

Those who wish to obtain this document, contact:

Tokyo Telecommunication Network Co., Inc. (TTNet)
Administration Group, Technical Engineering Dept.
Shibaura Square Bldg., 9-25, Shibaura 4-chome, Minato City, Tokyo, 108-8525, Japan
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IT Industry

Fujitsu

Introduces Business Integration Model for Enterprise Systems in the Internet Era

Utilizing EAI (Enterprise Application Integration) and EIP (Enterprise Information Portal) technologies, Fujitsu Ltd. introduced "The Extended Enterprise Model," a new business integration model for enterprise systems in the Internet Era. The new business integration model comprises a Fujitsu-developed communication-oriented middleware product, called INTERSTAGE CollaborationRing, and several products governing specific business and application components.

Looking ahead in the 21st century, companies face the need to rapidly adjust to dramatic changes in the management environment, as they grapple with such issues as new regulatory and accounting practices and the continual need to improve customer service. In order to meet these challenges and enhance competitiveness, successful companies must emulate the example of pace-setting corporations that have integrated their businesses and operations, thoroughly reforming their business processes and rebuilding their relationships with customers and trading partners.

As the keystone of Fujitsu's new Extended Enterprise Model, the company's INTERSTAGE CollaborationRing "communication-ware" enables customers to easily integrate their computer systems, including existing computer assets such as mainframes, UNIX servers, Intel architecture (IA) servers, and related application packages. In addition, based on its "ComponentAA" menu of system development environment components, the company is introducing 140 different general and industry-specific business and Internet development software components that enable speedy construction of EAI systems.

Moreover, Fujitsu has enhanced its GS8000 Series of global servers to provide a common application operating environment (Enterprise JavaBeans, Java, Servlet) and web foundation encompassing UNIX and IA servers, as well as strengthened its GP7000F family of UNIX servers to augment 24-hour continuous operation capability.

Together, these product introductions and performance enhancements constitute a significant upgrading of the "basic" and "application" layers of Fujitsu's SolutionVision lineup of comprehensive business solutions. Fujitsu will be making system proposals based on its new Extended Enterprise business integration model not only in Japan but also overseas through its group companies.

Frank Diana, Vice President of Extended Enterprise Business for DMR Consulting Group, a Fujitsu company in North America said, "DMR is excited about the products and services unveiled in Tokyo because they underscore the deep commitment of Fujitsu to offer cutting-edge business tools to help keep our clients competitive in the increasingly challenging markets around the world, including the US."

Fujitsu will continue to improve the EAI/EIP functionality of its "communication-ware" and "component-ware", expand its service offerings, and upgrade the functionality of its hardware and software in order

to meet the information systems needs of customers in the dynamic Internet era.

Fujitsu Now Sampling First Fast Cycle RAM (FCRAM) with Double Data Rate SDRAM Interface

Fujitsu Ltd. and Fujitsu Microelectronics, Inc. (FMI) introduced samples of the company's new 64 Megabit Fast Cycle RAM (FCRAM™) with Double Data Rate (DDR) SDRAM interface. Designed for graphics and multimedia applications, the FCRAM features high speeds and low power consumption.

The 64 Megabit FCRAM with DDR interface is the first in a series of Application Specific Memory (ASM) products based on the FCRAM architecture, which was introduced in June 1998 at the VLSI Symposium as Fujitsu's next generation of high-speed memory technology. The new ASMs announced feature a 200 MHz clock speed, DLL controlled output, and a 400 Megabit/second/pin data transfer rate. All versions use page mode operation. Random access speeds are very high, with the fastest random cycle time measured at 30 nanoseconds.

Application Specific Memory Products Meet Multi-market Requirements In recent years, the number of end products that use DRAMs has increased rapidly in market sectors such as computer products (PCs, workstations and servers), consumer products (digital TVs, digital still cameras, video disks and set-top boxes) and telecommunications and networking-related products (switches and routers, mobile/cellular phones, PDA and network servers). The different applications require higher performance and more diversified memory products, thus segmenting the DRAM market based on applications and performance. Since conventional commodity DRAMs cannot satisfy the different requirements of those various applications, Application Specific Memory products are becoming essential, particularly for the rapidly evolving multimedia, networking and graphics systems. In many ways, this trend is similar to the market shift that has impacted logic devices (ASICs).

The first products in Fujitsu's new series reflect the diversity of applications that can be served using the revolutionary FCRAM core technology. FCRAM includes memory array segmentation and internal pipelining that speed random access and reduce power consumption.

Receives Order from China Telecom for Advanced SDH Digital Microwave Radio System

In cooperation with Nissho Iwai Corp., Fujitsu has received an order from China's largest communications company, China Telecom, for an SDH (Synchronous Digital Hierarchy) digital microwave radio system. The order, which is valued at about 2 billion yen, consists of two projects: deploying a national trunk line connecting Beijing and Harbin, and laying spur lines in the Liaoning Province PTA. Together, the two projects will create a transmission network capable of transferring 2.5 gigabytes per second over the 1,400 kilometer distance between Beijing and Harbin.

China Telecom has been carrying out SDH digital microwave national trunk line projects since 1995, and as China's economy develops, it is moving forward to develop communications infrastructure that will support

the nation's economic activity. Up to now, national trunk lines using digital microwave systems have been constructed in 12 districts. Fujitsu has been working on projects for China Telecom since 1996. In September 1996, the company received an order for a 700 km-long trunk line between Xi'an and Chengdu, China Telecom's first digital microwave multiplex wireless system trunk line. The project, which was completed in April 1999, won a commendation of excellence from China Telecom. Fujitsu is also working on an 800 km-long national trunk line between Xi'an and Shijiazhuang (order received December 1997) and a 300 km-long national trunk line between Chengdu and Chongqing (order received June 1998).

The new Beijing-Harbin project will be the first for a national trunk line using an upgraded model of Fujitsu's FRX SDH digital microwave radio system, which has had a strong track record. The world's most compact SDH digital microwave radio system, the FRX has been used all over the world, including in China, and has won high marks for its reliability.

When the new project is completed -- and including the optical transmission system between Beijing and Guangzhou -- Fujitsu will have supplied about 5,000 km of China's north-south SDH national trunk line network linking Harbin and Guangzhou via Beijing. In total, the company has received orders from China for SDH national trunk line networks in nine routes covering a total distance of 12,000 km.

Because digital microwave radio systems are better able than optical transmission systems to withstand such natural disasters as floods and earthquakes, railroads and electrical power authorities in China are also considering their use. Taking advantage of the new order from China Telecom, Fujitsu will continue to make every effort to grow its SDH digital microwave radio systems business in China.

Fujitsu/Nikko Securities

Jointly Establish Internet Securities Company

Based on their agreement of last July, Fujitsu Ltd. and The Nikko Securities Co., Ltd. are this month establishing Internet Trading Securities Inc. (IT Securities), the world's first Internet-based introducing brokerage targeted at subscribers of a particular network. Enjoying the full support of Fujitsu and Nikko Securities, the new company will assist customers -- mainly subscribers of @nifty, Japan's largest Internet service provider -- with asset formation, taking advantage of the network to offer greater convenience.

Fujitsu boasts among the most sophisticated Internet technology in Japan and, in concert with its customers, the company has been helping to foster Japan's networked society from the very beginning. Nikko Securities is one of Japan's big-three securities firms, with a long history of reliable service. It has had a full-fledged presence on the Internet since last October, when it established an online securities firm. Backed by these formidable companies, IT Securities is expected to begin operations in April 2000.

Fujitsu and Nikko Securities are committed to providing efficient and highly reliable service, as well as to inspiring confidence in the system and security standards that are the keys to the Internet commerce. They intend to offer @nifty subscribers and other customers high-quality financial products closely matched to their needs along with economical service on a continuing basis.

NEC

Develops World's Strongest Encryption Technology

On January 24, 2000, NEC Corp. has developed the world's strongest encryption technology, CIPHERUNICORN-A, to protect valuable and private information transmissions by businesses and consumers across the Internet and other networks, a vital requirement for the success of online trading.

CIPHERUNICORN-A is based on a technique developed by NEC in 1997 that creates a number of fake keys in addition to the true encryption key, making it especially difficult for potential intruders to crack the encryption. This fake key technique belongs with common key encryption that provides processing speeds several thousand times faster than the more common "public key" technique.

Based on the fake key technique, the new development achieves significantly higher levels of security. By moving from a fixed encryption code length of 128 bits to a dynamic encryption code capable of using key lengths of either 128 bits, 192 bits and 256 bits, the technology makes it significantly more difficult to crack the encryption.

The result of these achievements is an encryption technology that is extremely secure from attempts to discover both the encryption key and target data. Moreover, compared to NEC's previous technology, 1039 calculations would be necessary to crack the code, making it nigh impossible for it to be broken. Together with this level of security, the software is also extremely easy to utilize on a range of systems. The software's interface also conforms to the Data Encryption Standard (DES) introduced by the U.S. Department of Commerce and now a world standard, as well as the next-generation Advanced Encryption Standard (AES).

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Data/network system development, graphics design, by Jay Richards

IT industry:

Continued from Page 5

In order to evaluate the level of protection, this encryption technology provides, NEC examined the features of each encryption algorithm in a unified process that results in a 3D graphic representation (encryption strength evaluation system). As a result of these tests, the technology was proved to go beyond even the requirements of the AES standard now in the final stages of implementation by the U.S. Government, confirming it provides the highest level of protection in the world.

Currently, the worldwide standard for encryption is DES that was established by the US Department of Commerce in 1977. The DES encryption key, however, is relatively short and if attacked by a decryption system comprising several tens of thousands of networked PCs, such a key could be cracked within a day causing considerable concerns about the security provided. With DES encryption and with others, there are still the problems of dealing with the sheer variety of means for cracking encryption as well as the increasing computing power becoming available.

NEC researchers therefore decided to design an encryption technology that conforms to the DES standard while also maintaining compatibility with the next-generation AES standard and aimed at use on current systems to provide the world's highest level of encryption with rapid processing times. As a result, the new technology is expected to contribute to the development of network systems thanks to its ability to protect private information.

NEC expects to see the technology implemented in products such as encryption modems, encryption faxes and electronic transaction and electronic credit card systems, while the company also plans to introduce this capability into other products also.

NEC

Licenses MOSYS' 1T-SRAM Technology for High-Density Application-Specific Memories

On January 31, 2000, MoSys, Inc. and NEC announced the licensing of MoSys' 1T-SRAM technology for use by NEC's 1st LSI Memory Division in high-density application-specific memories that will notably count Nintendo's next-generation game console among its future applications. Details of the product will be announced at a later time.

"NEC evaluated and licensed MoSys' 1T-SRAM memory technology based on its unique combination of performance, density and power capabilities not available from other technologies," said Kazu Tokushige, chief manager at NEC's 1st LSI Memory Division.

Following the March 1st 1999 licensing announcement, the companies have been cooperating to port and silicon-validate MoSys' 1T-SRAM technology on NEC's advanced fabrication processes in a variety of configurations.

NEC Corp. has begun sampling of a 128 megabit (Mb) synchronous DRAM (dynamic random access memory) device that utilizes the performance enhancing Virtual Channel Memory technology introduced to the market by NEC in 1997. NEC will also begin sampling of 128 and 256 megabyte (MB) memory modules mounting 8 and 16 of the new devices respectively.

Fabricated in a 0.18-micron process, and with an optimized circuit layout, the new Virtual Channel SDRAMs achieve high-speed operation with a read latency 2 at 133 MHz (7.5 ns) using the PC133 standard. The Virtual Channel

Memory SDRAMs are also fully package- and pin-compatible with standard SDRAM parts and can be freely used in place of them when supported by the memory controller to achieve a 30% increase in system speed.

Volume production of both the new memory device and the modules is planned to follow sampling from April 2000. Production of the memory devices will begin at a rate of 1m parts per month.

Matsushita Electric Industrial, SanDisk and Toshiba To Form SD Association to Promote Next-Generation SD Memory Card

Matsushita Electric Industrial Co., Ltd., SanDisk Corp. and Toshiba Corp. announced that a new industry-wide association will be created to set industry standards for the SD (Secure Digital) Memory Card and promote its wide acceptance in digital applications. The announcement was made at a press conference at the CES trade show.

The new organization, named the SD Association (SDA), will be headquartered in California and its executive membership will include some 30 world-leading high-tech companies and major content companies. Initial SDA membership is expected to include approximately 100 companies from around the world covering diverse industries including consumer electronics, information processing, telecommunications, entertainment and software.

Thus far, 70 companies have stated they plan to join the SDA as members. The companies that plan to join the association as executive members are:

Alpine Electronics Inc., ARM Inc., Audible Inc., Canon Inc., Casio Computer Co., Ltd., Compaq Computer Corp., Diamond Multimedia/S3, Eastman Kodak Co., EMI, Hewlett Packard Co., IBM Corp., Kenwood Corp., LG Electronics Inc., Liquid Audio Inc., Matsushita Electric Industrial Co., Ltd., Microsoft Corp., Micronas Intermetall GmbH, Mitsubishi Electric Corp., Motorola, NEC Corp. (Cellular Phone), Olympus, Onkyo Corp., QUALCOMM, RealNetworks Inc., Samsung Electronics Corp., Ltd., SanDisk Corp., Sharp Corp., Socket Communications Inc., Symbian Ltd., TDK Corp., Toyota Motor Corp., Toshiba Corp., Universal Music Group and Victor Co. of Japan Ltd.

The companies planning to join the SDA as general members are: Alps Electric Co., Ltd., Altec Computer-systeme GmbH Ltd., AMP (Japan), Ltd., AVX Corp., Clarion Co., Ltd., e.Digital Corp., Eiger Labs Inc., FCI Japan Co., Ltd., Hirose Electric Co., Ltd., Hitachi Maxell Ltd., Honda Tsushin Kogyo Co., Ltd., Hosiden Corp., Innogear Inc., InterTrust Technologies Corp., Iriso Electronics Co., Ltd., Japan Aviation Electronics Industry, Ltd., J.S.T.NFG. Co., Ltd., Kyocera Elco Corp., LinkUp Systems Corp., Matsushita Electric Works Ltd., MediaQ Inc., Molex Inc., Molex Japan Co., Ltd., Next Audio Inc., Pontis, RioPort.Com, SCM Microsystems Inc., Silicon Storage Technology Inc., SmartDisk Corp., Taiko Denki Co., Ltd., Texas Instruments, Tokyo Electron Co., Ltd., Tomita Traders Co., Ltd., TYCO Electronics EC, Yamaichi Electronics Co., Ltd., Yokowo Co., Ltd., and Zoran Corp.

The first general meeting of the association is tentatively scheduled for the end of January, 2000. The association aims to establish technical and specification standards for the SD Memory Card applications, promote the next generation memory card to make it

widely used in the industry through standardization, and encourage development of products in the field of digital A/V equipment and digital information network equipment.

Last August, Matsushita, SanDisk and Toshiba announced agreement on a comprehensive collaboration to jointly develop, specify and widely promote a next generation secure memory card called the SD Memory Card. With a physical profile of 24mm x 32mm x 2.1mm, which is as tiny as a postage stamp, the new card will provide both an SDMI-compliant (Secure Digital Music Initiative), high-level of copyright protection and high-density memory capacity. The three companies have worked closely with a variety of interested parties to encourage participation in the card standard and have generated extremely strong support from key industry companies.

"Matsushita Electric believes that the SD Memory Card is a vital link to the digital future," said Yoichi Morishita, president of Matsushita Electric Industrial Co., Ltd. "The establishment of the SD Association with membership drawn from some of the world's leading technology and music companies is a major step toward the goal of making SD a de-facto storage standard. With this vision in mind, we expect to develop and produce a wide range of SD Memory Card-based Panasonic products, including not only audio, video, mobile communications and PC applications but also information appliance products. When we have a single compatible memory card that can be used in products from PCs to Internet music players, the biggest beneficiary will be the consumer."

Eli Harari, CEO and president of SanDisk, said, "The tremendous interest in the SD Memory Card by such a broad base of global corporations in the four months since its introduction is completely without precedent. We believe that the formation of the SDA as a standards organization open to all, will further accelerate acceptance of the SD Memory Card as the universal storage media for portable, wireless and Internet market applications. Already there are more than 50 companies that have stated they plan to join the SDA, including the leading manufacturers and content providers in consumer audio/video, digital imaging, Internet, communications and wireless, personal computers and PDAs, automotive, and other key markets in the information age. This success is a testimony to the strong cooperation established between Matsushita, Toshiba and SanDisk as the founding members of the SDA. We at SanDisk are honored to be a part of this effort and are committed to establishing the SD Memory Card as the global, universal storage card for the consumer/wireless/Internet era."

Taizo Nishimuro, CEO and president of Toshiba Corp., said, "We are delighted to launch the Secure Digital Association, and pleased to see the backing this leading-edge memory card has already won from so many companies around the world. I am sure this unprecedented degree of support reflects the high level of copyright protection and data security functions that we have built into the SD Card, and points the way to the success of this highly reliable removable memory device. At Toshiba, the inventor and prime supplier of NAND flash memory for SD Memory Cards, we will accelerate and expand our memory card business through the development and commercialization of state-of-the-art digital electronics products and systems fully utilizing our capabilities in portable and mobile equipment."

Xavier Pucel, manager of semiconductor research at International Data

Corp., said, "For at least the next five years, Internet music players and smart handheld devices will be the top contributors to the growth of the flash card market. By nature, these devices will favor small form factors, low power consumption and some level of copyright protection/security. The Secure Digital Memory Card meets these requirements. All in all, the SD card is well positioned to take advantage of the upcoming 'anywhere, anytime' Internet wave."

Jesse Huffman, senior analyst at In-Stat Group, said, "The formation of the SD Association validates the need for the copyright protection of digital content. With support from industry leaders, especially from high-quality content providers, the SD Memory Card format will become the industry standard for removable digital storage. By building upon the success of the MultiMediaCard format, the new SD will enjoy an established client base and worldwide distribution channels. The new association is a smart move."

The flash-memory based removable storage card provides a compact, reliable and easy-to-use medium to store high volumes of audio, visual, and other data for digital music players, cameras, personal digital assistants (PDAs), video cameras, cellular phones, GPS systems and other digital consumer electronics products. Its strong copyright protection capability meets the requirements of artists and content owners and offers greater data security for users.

Sampling of the new SD Memory Card is expected to begin in the first quarter of 2000. Production shipments are expected to commence in the second quarter of 2000. The card will initially be available in 32 and 64 megabyte capacities. It is expected that application products that use the new card will be available in the first half of this year.

Fujikura

Developed and Started Marketing Integrated Wiring System

Fujikura Ltd. has developed and started marketing a new integrated wiring system, the Gigabit-Fujikura Integrated Telecom & data-com wiring system, or GIGA-FIT, an optical wiring system for giga-bit transmission integrated with a metallic wiring system.

The MT-RJ optical wiring system, the proven world-leading wiring system from Fujikura, is the core of the optical wiring system.

Many devices can be arranged around the core system, including gigabit multi-fiber cables for backbone lines, floor cables and cords with excellent compression characteristics suitable for horizontal wiring, a variety of unpolished, non-adhesion local assembly optical connectors, patch cords, FO cords, 19-inch rack-mounted patch panels, and wall mounted cabinets.

The metallic wiring system, the other component of the GIGA-FIT wiring system, is based on Enhanced Category 5 (CAT5e), the standard for Unsealed Twisted Pair (UTP) cables. This metallic wiring system supports 4-pair full duplex transmission and also integrates many useful elements necessary for efficient on-site metallic wiring systems. These include multi-pair UTP cables, patch cords, modular plugs and jacks, and 19-inch rack-mounted modular patch panels.

The GIGA-FIT integrated wiring system will be used in intelligent buildings, plants, universities and private residences and can accommodate their respective requirements.

BS Digital:*Continued from Page 1*

for these licenses.

During the screening process, two controversial issues surfaced: entry of the former state communications monopoly NTT Group into the broadcasting business and foreign capital restriction.

The NTT Group (NTT Mobile Communications Network, Inc. and NTT Data Corp.) has a 20% of the stakes of Japan MediaArk, a consortium comprised of Jiji Press, Kyodo Press, Dentsu Inc. (all former components of the government-managed Domei Press Agency which existed before the war) and other non-NTT companies.

Eita Yashiro, Minister of Posts and Telecommunications, said: "Entry of the NTT Group into the broadcasting business will have a great impact on the market. The NTT Group should be concentrating its business on telecommunications."

Nevertheless, MPT decided to grant a license for the firm.

Under the NTT Law, three NTT companies (NTT East Corp., NTT West Corp. and NTT Communications Corp.) are allowed to hold less than a 3% share in a broadcasting firm.

According to Motonobu Toyoshima of the Telecommunications Policy Di-

vision, Telecommunications Business Dept., Telecommunications Bureau of MPT, upon granting a license for the Japan MediaArk, MPT decided that a joint venture of these three NTT companies and their NTT subsidiaries can hold a total of less than 10%, with NTT subsidiaries holding less than one-third of the stakes.

At the same time, however, MPT turned down the application from Sony Corp. because of foreign capital regulation.

According to Takaju Wachi of the Satellite Broadcasting and HDTV Division, Broadcasting Bureau of MPT, under the current broadcasting law, foreign capital of broadcasters is limited to less than 20%.

Since the foreign capital rate for Sony is around 45%, far exceeding the limit, Sony's application was turned down.

There are two kinds of data broadcasting service: services provided by TV broadcasters linking their TV programs, and the other type of services provided by non-TV broadcasters that does not involve TV programs.

EPG (electronic program guide) is one of such services with the highest expectations in the former category. With the EPG, viewers can not only get information about TV and radio programming but also make reservations to

videotape a TV program.

All of the broadcasters are placing an emphasis on this service because it is seen being the most popular.

In case of the latter category, news, weather forecasting, shopping and home banking are expected to become the mainstay. Mega Port Broadcasting Inc., whose major shareholders are Mainichi Shimbun and Kadokawa Shoten, is planning to provide a variety of information services. According to Yutaka Iwahashi, Manager of Media Planning Section of Mega Port Broadcasting, it will provide news, weather forecasts, transportation information, agriculture news and entertainment information from a popular information magazine, "Tokyo Walker", as well as Disney information.

Media Serve Corp., whose main shareholder is Toshiba Corp., is planning to provide game, quiz, on-line shopping, banking and home delivery services from a nearby convenience store.

Japan MediaArk is planning to provide news from Jiji and Kyodo Press, and to provide services linked with iMode, the popular Internet access services provided by NTT DoCoMo.

Not only broadcasters, but also other firms are struggling to enter the BS digital market in business areas such as planning, producing and providing content as well as providing technical sup-

port and platform. Media Serve will launch into such a business. The firm said it will seek to attract its customers with lower charges by fully utilizing its business experience with IT Vision, an analog data broadcasting service. Another company backed by the Matsushita and NTT group companies in cooperation with a Tokyo broadcaster has also been launched as well.

NTT East Corp. is going to provide CAS (Conditioned Access System) services for BS data service providers. BS digital broadcasters will distribute an IC card for each of the viewers. NTT East is planning to control the IC card and collect subscription fees as well as fees for pay-per-view services. According to some reports, all of the BS data broadcasting services will use the NTT East center. However, neither NTT East nor broadcasters will confirm these reports.

Separately, NTT East and SkyPerfectTV established SN Planning company in December 1999 to provide settlement services including sending bills to viewers and customer management. The firm will provide the service for SkyPerfectTV's new broadcasting services using a satellite scheduled to be launched in the summer of 2000.

ISP War:*Continued from Page 1*

market.

Revamping of the market has already started: some pioneering ISPs in Japan such as Rim Net and Tokyo Internet have been taken over by PSI Net, one of the largest ISPs in the U.S.

In order to win the battle, ISPs have to garner more subscribers. At the moment, ISPs backed by major manufacturers are leading the market. The frontrunner is @nifty, an ISP owned by Fujitsu Ltd., with the largest number of subscribers at 3.5 million. It is followed by BIGLOBE, an ISP owned by NEC Corp., and So-net, an ISP owned by Sony Corp. ISPs owned by carriers are also winning a large number of subscribers with less expensive access charges. OCN owned by NTT Corp. and ODN owned by Japan Telecom Co., Ltd. have 650,000 and 540,000 subscribers, respectively.

AOL Japan, the largest ISP in the U.S., is also successfully expanding its subscription base here.

A battle has been already launched between Fujitsu and NEC.

Fujitsu, in cooperation with Nissho Iwai Corp., used to run Nifty Serve, a (non-Internet based) computer communications network service. In 1999 Fujitsu made Nifty its wholly-owned subsidiary and merged it with Infoweb, an ISP owned exclusively by Fujitsu.

Thus, in November 1999, @nifty, the nation's largest ISP, was born.

Fujitsu President Naoyuki Akikusa said that his company is planning to have 10 million subscribers for @nifty within five years.

"Then @nifty will take on the role of a virtual town that will provide a variety of services including shopping, medical services and even police services," Akikusa said.

Due to a recent decline in its profits

from computer, communications and semiconductor businesses, Fujitsu's main business has been shifting from conventional hardware to software services including systems integration (SI) services. By making @nifty the strongest portal site, Fujitsu is planning to let tenants who wish to carry out a variety of services targeting the 10 million future subscribers open their stores on the virtual mall. The portal site may also provide Fujitsu with a chance to expand its SI services.

Fujitsu has been already won some business using this business model: with Nikko Securities Co., Ltd., Fujitsu established an on-line security dealer, while with Sakura Bank Ltd. and Sumitomo Bank Ltd., it is going to launch a virtual bank.

NEC is not taking a wait-and-see attitude. NEC declared that it would gather 10 million subscribers for BIGLOBE by 2002, two years earlier than its rival, Fujitsu.

But NEC's tactics are slightly different from Fujitsu's: NEC is planning to comprise half of its 10-million subscriptions base with corporate users. NEC will turn BIGLOBE into an information platform for corporate users. By doing so, the Internet services provided by these corporate users will be concentrated on the platform. Companies that use these services will also come down to BIGLOBE.

NEC is already providing its information infrastructure for large corporations such as Obayashi Corp. and Sumitomo Trust & Banking Co., Ltd. It is also placing an emphasis on Business-to-Consumer (B-to-C) business using BIGLOBE by providing hosting and settlement services. Both Fujitsu and NEC have large market shares of the Japanese PC market. Right now both firms are making all-out effort to get hold of their PC users through their

ISP services, providing free Internet access services for a limited period to them. Some market watchers said that they may give away their PCs in order to get more ISP subscribers.

So-net and AOL are taking a different tack.

The strength of So-net is the variety of content owned by Sony Group. The Sony Group has not only entertainment companies such as Sony Music Entertainment Inc., a music company, and Sony Computer Entertainment Inc., a home video game machine company, but also securities/financial companies such as Sony Life Insurance Co., Ltd. Recently, Sony announced that it would launch a virtual bank.

All of these services are targeting individual consumers. So-net is a channel the Sony Group uses to provide their content to individual consumers.

And these individual consumers receive these services along with VAIO, a popular PC, as well as PlayStation 2, the next-generation video machine scheduled for release in March 2000, in addition to the Sony cellular terminals.

Sony's weak point though is that it does not have any access lines that link So-net access points and these terminals. To realize this so-called "last one-mile" link, Sony is going to launch WLL (Wireless Local Loop) services in late 2000.

Unlike maker-type ISPs, AOL, the largest ISP in the world, does not have any PCs division. The strength of AOL is the world's largest number of subscribers and a worldwide network.

Recently, AOL announced its merger plan with Time Warner, the largest cable TV company in the United States. Once the merger is completed, AOL will be seen taking aggressive net strategies for fully utilizing its total of 100 million subscribers.

The common rival of these non-car-

rier-type ISPs is NTT. These non-carrier-type ISPs have to use leased lines of Type I carriers including NTT. On the other hand, carrier-type ISPs obviously do not need to pay for the use of their own networks. That's why carrier type ISPs can provide their services at a lower charge.

Among carrier type ISPs, NTT Group is in the most advantageous position. Fully utilizing its strong financial background, NTT is providing OCN at a significantly lower charge and is winning new subscribers. In order to gather more users, NTT is going to provide a free PC for OCN users through a tie-up with IBM Japan, Ltd.

NTT Group has another killer service, the iMode service that NTT DoCoMo launched in February 1999. This is rapidly expanding its user base; in just one year, iMode won nearly 3 million subscribers. NTT DoCoMo is expecting to see the total number of subscribers to reach 5 million by the end of March 2000 and 10 million by the end of March 2001. If realized, iMode subscribers will exceed that of @nifty.

Furthermore, NTT DoCoMo is scheduled to launch its 3G services in the spring of 2001, which is to have an Internet connection function. iMode (or iMode-like service) subscribers may then exceed the worldwide subscription base of AOL (at present 20 million).

Besides the OCN and iMode, the NTT Group also has InfoSphere (NTT Communications Corp.), DreamNet (NTT Data Corp.) and Purara (NTT East Corp.). Should the NTT Group integrate these services, it will be the largest and strongest ISP.

Unless the non-carrier-type ISPs provide unique, value-added services for their customers such as original content, strong brand images and useful services, it might be difficult for them to compete with the Gulliver-like NTT Group.

Statistics

Records of Telecom Equipment (As of July 1999)

Production

Type	Jul. '99		Compared with Jul. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	287,126		4.2
Terminal Equip.	139,939		-7.7
Wire Telecommunications Equip.	39,073		-17.3
Telephones Sets	6,732	856,697	-28.4
Standard Type	479	53,342	-15.7
Functional Type	481	125,224	-45.9
Wireless Phone	5,525	676,325	-16.4
Others	247	1,806	-81.5
Telephone Application Equip.	13,816		-0.3
Key Telephone Systems	6,456	264,127	-23.2
Small Capacity	276	25,601	-20.9
Medium/Large Capacity	6,180	238,526	-23.3
Telephone Auxiliary Equip.	153	46,146	-74.5
Interphones	3,826	378,307	40.8
Others	860		-59.7
Telegraph & Picture Transmission Equip.	18,525		-22.8
Facsimile	17,525	342,308	-23.7
Super High-Speed Facsimile	181	1,880	-26.4
High-Speed Facsimile	16,614	338,537	-23.6
Other Facsimiles	730	1,891	-25.5
Others	1,000		-2.8
Mobile Terminal Equip.	100,866	4,222,170	-3.4
Land	99,147	4,183,087	-2.8
•Automobile	68	2,809	-93.8
•Portable	90,831	3,566,931	4.0
•Pager	375	42,639	-80.9
•MCA	70	1,970	-70.5
•Public PHS Terminal	4,959	354,181	-17.0
•Others	2,844	214,557	-47.2
Maritime and Airplane	1,719	39,083	-28.5
Personal Radios (900 MHz)	-	-	-
Network-Related Equip.	143,991		20.5
Wire Network-Related Equip.	124,282		26.8
Switching Equip.	52,500		13.1
Electronic Switches	32,826		-5.5
For Telephone Offices	25,949		1.0
For PBX	6,877		-24.1
Other Switching Equip.	19,674		68.5
Carrier Equip.	71,782		39.0
Code Transmission Equip.	53,381	15,222	46.4
MODEMs	4,043	11,704	16.7
Others	14,358		22.8
Mobile-Related Network Equip.	17,627	14,386	-18.0
Fixed Station Communications Equip.	11,330	4,856	-30.1
Terrestrial	9,505	4,343	-25.0
Satellite	1,825	513	-48.5
Base Stations	6,297	9,530	19.3
Wire Telecommunications Parts	3,196		-25.7
Relays (1,000 units)	3,044	43,368	-25.9
Other Components	152		-22.1
For Reference	2,034	2,342	-30.6
Broadcast Equip.	21,750		120.0
Radio Application Equip.	12,866	5,232	228.7
Radars	1,291	4,507	-23.9
Radio Measuring Equip.	7,593		77.6
Others	3,552	748	85.8
Telemeters/Telecontrol Equip.	4,041		71.0

Remarks: 1) Data are based on the Statistics of Actual Production by the Ministry of International Trade and Industry (MITI).
2) Radio Communications excludes the citizen band transceivers and the amateur radio equipment.

Source: Communications Industry Association of Japan

Export

Type	Jul. '99		Compared with Jul. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	58,025		-19.3
Wire Telecommunications Equip.	50,786		-14.1
Telephones	1,978	250	-57.6
Cordless Telephones	1,263	145	-60.0
Other Types	715	105	-52.6
Telephone Application Equip.	591	44	-77.8
Key Telephone Systems	171	7	-66.1
Automatic Answering Telephone Sets	113	2	-40.6
Intercoms	173	32	12.3
Others	134	3	-92.6
Telegraph and Picture Transmission Equip.	6,532	166	-42.6
Facsimile Equip.	6,532	166	-42.6
Teleprinters			
Others			
Switching Equip.	3,084	17	-41.1
Carrier Equip.	7,606	31	44.8
Components	30,995		3.6
Radio Communications Equip.	7,239	220	-43.4
Transmitter and Transmission/Receiving Equip.	6,640	153	-42.9
For Long/Medium/Short Waves	518	5	-21.8
For Ultra Short Waves	1,594	79	1.9
For Other Waves	4,527	68	-51.9
Receivers	599	67	-48.0
For Reference	797	264	-11.3
Broadcasting Equip.	12,417	789	-37.3
TV Camera	3,143	264	-20.2
Radio Application Equip.	971	2	-30.9
Radars	1,294	26	-13.7
For Navigation	102	1	154.0
Direction Finders	1,192	25	-18.3
Others	878	761	-15.2

Import

Type	Jul. '99		Compared with Jul. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	33,281		-15.1
Wire Telecommunications Equip.	30,289		-12.8
Telephones	1,642	346	-27.4
Cordless Telephones	595	106	-51.4
Other Types Telephone Sets	1,048	240	0.8
Telephone Application Equip.	334	50	-5.7
Automatic Answering Telephone Sets	40	5	-48.5
Others	294	45	6.2
Telegraph and Picture Transmission Equip.	2,263	120	18.0
Facsimile	1,935	116	3.4
Teleprinter			
Others	327	4	599.9
Switching Equip.	9,053	36	-28.4
Carrier Equip.	3,988	241	36.0
Components	13,009		-11.0
For Wire Telecom Only	11,119		-19.1
Parts for Common Use in Wired/Radio Communication Equip.	1,890		116.4
Radio Communications Equip.	2,991	75	-33.1
Transmitter and Transmission/Receiving Equip.	2,892	69	-19.2
Transmitting Equip.	225	19	39.7
Transmitting and Receiving Equip.	2,532	36	-24.9
For Aviation	73	1	88.8
For Mobile Telephone	162	17	-88.7
For Long/Medium/Short Waves	24	9	34.9
For Ultra Short Waves	111	6	263.9
For Other Waves	12,297	19	20.7
Receivers	99	6	-88.8
For Reference	564	21	-0.1
Broadcasting Equip.	1,614	1,897	-4.0
Radio Application Equip.	249	2	145.1
Radars	396	1	17.8
For Navigation	969	1,894	-22.1

Remarks: 1) Data are based on the Statistics of Custom Clearance by the Ministry of Finance.
2) Radio Communications excludes the citizen band transceivers and Cordless microphones.
3) There are cases in which the total value will not equal the components because the figures have been rounded one decimal place. Also, the comparative ratios are calculated in ¥1,000 units.

Source: Communications Industry Association of Japan

Current Electric & Electronic Machinery Statistics (As of July 1999)

Products	Unit	Production			Sales			Stock		
		Jun. '99	Jul. '99	Jul. '99/Jul. '98 (%)	Jun. '99	Jul. '99	Jul. '99/Jul. '98 (%)	Jun. '99	Jul. '99	Jul. '99/Jul. '98 (%)
Video Tape Recorder	Sets	662,059	679,939	73.2	1,179,202	1,345,985	101.6	1,351,346	1,381,575	125.3
Video Disk Player	Sets	4,839	5,943	48.1	7,942	6,506	40.2	18,941	19,942	60.1
Video Camera	Sets	1,026,778	1,056,008	110.7	927,514	993,457	119.2	579,328	644,159	88.5
Car Navigation System	Sets	237,041	215,257	128.2	183,699	173,005	115.3	114,802	110,912	116.1
Digital Audio Disk Player	Sets	1,755,029	1,696,132	104.9	1,528,184	1,616,712	98.9	1,988,029	1,990,015	136.5
Active Liquid Crystal Device	1,000 units	4,297	4,745	174.3	3,713	3,826	216.8	1,028	1,084	77.9
Passive Liquid Crystal Device	1,000 units	39,558	39,774	121.5	36,850	38,097	121.3	17,292	17,150	73.2
Photoelectric Converter	1,000 units	941,932	992,230	121.3	1,046,218	1,148,798	136.1	361,959	365,597	85.5
Bipolar Semiconductor IC	Mil. yen	8,324	8,879	120.1	5,999	5,840	135.1	-	-	-
MOS Semiconductor IC (logical element)	Mil. yen	147,397	152,874	109.2	132,045	135,543	113.7	-	-	-
MOS Semiconductor IC (memory element)	Mil. yen	66,703	64,121	100.2	66,650	66,815	117.3	-	-	-
Hybrid IC	Mil. yen	24,628	24,255	99.8	22,585	21,683	106.4	-	-	-
General Purpose Computer	Mil. yen	17,564	21,874	58.7	-	-	-	-	-	-
Mid-range Computer	Mil. yen	24,681	27,963	91.0	-	-	-	-	-	-
Personal Computer	Sets	994,958	1,205,449	149.1	-	-	-	-	-	-
Electrical measuring instrument (Except for semiconductors and IC measuring instruments)	Mil. yen	14,790	14,194	82.1	-	-	-	-	-	-
Semiconductor and IC Measuring Instrument	Mil. yen	17,677	15,730	139.0	-	-	-	-	-	-
Industry-use Measurement Control Unit	Mil. yen	14,208	13,753	78.3	-	-	-	-	-	-

Source: Machinery Statistics and Research Office, MITI

Cable Supply & Demand Classified by Type (As of July 1999)

Type of Cables	Orders Received			Shipment		
	Jul. '99	Jul. '99/ Jun. '99 (%)	Jul. '99/ Jul. '98 (%)	Jul. '99	Jul. '99/ Jun. '99 (%)	Jul. '99/ Jul. '98 (%)
Open Wire (OW)	8,288	96.4	105.2	8,241	97.9	101.9
Winding Wire	14,739	97.7	101.1	15,796	96.3	96.8
Cable for Machinery	5,226	101.4	95.6	5,205	100.4	94.0
Communications Cable	4,381	127.2	110.0	4,101	140.8	94.0
Power Cable	23,143	92.6	103.6	21,700	92.9	84.9
Covered Wire	15,429	106.4	93.9	15,285	102.8	94.3
Cable for Transportation	4,780	104.4	104.8	4,804	104.0	105.9
Total	75,986 (87,495)	99.5 (102.2)	101.0 (97.2)	75,132 (86,595)	99.2 (102.4)	93.2 (85.0)
Aluminum Power Cable	3,279 (2,293)	62.2 (59.1)	79.8 (70.5)	3,928 (2,094)	91.6 (86.4)	69.0 (50.4)
Optical Cable				938,577 (23,559)	105.4 (100.7)	152.4 (128.4)

Remarks: 1) Figures of optical cable show "km Core."

2) Figures in parenthesis represent the amount in yen.

Source: The Japanese Electric Wire and Cable Makers' Association

Cable Supply & Demand Classified by Major Consumption Fields (As of July 1999)

Fields	Orders Received				Shipment			
	Jul. '99 (Actual)	Jul. '99/ Jun. '99 (%)	Jul. '99/ Jul. '98 (%)	Aug. '99 (Estimated)	Jul. '99 (Actual)	Jul. '99/ Jun. '99 (%)	Jul. '99/ Jul. '98 (%)	Aug. '99 (Estimated)
Telecommunications	2,951	137.3	114.7	2,300	2,846	158.1	94.5	2,300
Electric Power	7,550 (2,241)	85.2 (58.4)	100.6 (68.7)	8,800 (2,900)	7,457 (2,415)	79.6 (86.7)	76.5 (52.4)	7,000 (2,700)
Electric Machinery	18,441 (373)	101.6 (121.9)	98.5 (234.6)	17,200	19,515 (353)	99.3 (114.2)	96.2 (168.1)	15,700
Automobile	6,293	99.3	103.9	5,200	6,319	99.7	103.6	5,100
Construction/Cable Shops	30,041 (57)	105.7 (211.1)	95.4 (111.8)	27,500	30,047 (47)	105.9 (156.7)	96.7 (102.2)	28,400
Others	5,451 (72)	90.1 (80.9)	84.6 (52.2)	5,200 (400)	5,657 (62)	88.7 (47.7)	86.6 (31.3)	5,500 (400)
Domestic Demand Total	70,727 (2,743)	101.1 (64.4)	97.2 (76.0)	66,200 (3,300)	71,841 (2,877)	99.9 (88.4)	93.6 (56.8)	64,000 (3,100)
Export	5,259 (536)	82.2 (53.2)	213.2 (107.4)	2,900 (400)	3,291 (1,051)	85.5 (101.5)	84.7 (167.6)	3,900 (500)
Total	75,986 (3,279)	99.5 (62.2)	101.0 (79.8)	69,100 (3,700)	71,532 (3,928)	99.2 (91.6)	93.2 (69.0)	67,900 (3,600)
Core Cable Sales	28,217 (151)	79.8 (120.8)	87.9 (49.2)	30,700 (100)	31,478 (139)	104.3 (120.9)	102.1 (46.6)	26,500 (100)

Remarks: 1) Figures of optical cable show "km Core."

2) Figures in parenthesis represent the amount in yen.

Source: The Japanese Electric Wire and Cable Makers' Association

IT Industry

Sharp

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Liquid crystal TV as thin as 6 cm with speaker system that produces bass frequencies as low as 85Hz (jointly developed with BOSE Corp.).

Sharp Corp., a worldwide developer of innovative products and core technologies that play a role in shaping the future of electronics, releases the world's first 28-inch wide-screen liquid crystal display television compatible with digital hi