

Vol. 14, No. 12
March 2000

Find TT on the web
www.telecomtribune.com

TELECOM

TRIBUNE

Inside...

SKYPerfectTV, DIRECTV: CS Platforms to Merge	1
Trading Firms and Banks Struggle to Win CVS EC Channels	1
Joint Development of Next-generation Encryption Algorithm Camellia	1
NTT Group to Provide New, More Attractive Services: NTT Access Network Service Systems Laboratories	2
NTT Submits Business Operation Plan for FY2000 to MPT for Approval	3
Net Strategy: Technology Companies Are Changing into E-companies	4
Technical Information Disclosure	6
Statistics	8

SKYPerfectTV, DIRECTV: CS Platforms to Merge

Two CS (communications satellite) digital broadcasting platforms are going to merge their businesses which would eventually leave only one CS platform in Japan. Although they are called differently, SKYPerfectTV, the leading CS platform, will virtually take over ailing DIRECTV (Japan), in a rescue operation. Japan Digital Broadcasting Services Inc., which runs SKYPerfectTV, and Hughes Electronics Corp., the leading shareholder of DIRECTV Japan Management Inc. which runs DIRECTV, announced on March 3 that these two platforms will merge their business by the end of this year.

Under the arrangement, shareholders of DIRECTV including Hughes will acquire stakes in SKYPerfectTV; DIRECTV will transfer its 400,000 subscribers to SKYPerfectTV; and DIRECTV will liquidate the firm by the end of fiscal 2000, ending at the end of March 2001.

Japanese CS digital broadcasting

which started in 1996 was supposed to have three businesses, but instead will end up with only one platform, SKYPerfectTV, in just three and a half years.

According to the March 3 announcement, SKYPerfectTV will allocate a total of 182,000 shares to the third parties by the end of March 2000. Hughes will take 120,000 shares out of the 182,000.

DIRECTV will make all of its effort to transfer all of its 400,000 subscribers to SKYPerfectTV. If these subscribers want, DIRECTV will provide tuners and antenna necessary to receive SKYPerfectTV services for them free of charge.

DIRECTV will cease its services by the end of December 2000.

However nobody knows yet whether other shareholders of DIRECTV will take the rest of the shares.

Major shareholders of DIRECTV include Matsushita Electric Industrial Co., Ltd., Mitsubishi Electric Corp., Mitsubishi Corp., Super Communications Corp. and Dai Nippon Printing Co., Ltd.

Since it launched business in Japan in 1997, DIRECTV (Japan) has been falling behind its rival platform of SKYPerfectTV. Initially Hughes tried to revitalize the business by itself. However, the firm finally gave up. On the other hand, SKYPerfectTV also found benefit in the merger of their business with DIRECTV because BS digital broadcasting is scheduled to be launched

in December 2000.

However, there are many unsolved issues over the merger plan. They have not decided how to deal with TV programs on DIRECTV.

At present DIRECTV has 130 channels and SKYPerfectTV has 170 channels. Among them, about 60 channels are overlapped. DIRECTV has some 30 original channels. It is largely believed that DIRECTV's 30 original channels will be transferred to SKYPerfectTV. But Akio Yamada, a spokesman of Hughes, said that it is up to all of these broadcasters (consignors or program supplying broadcasters). "If they want to continue to air these programs and if they can get a license from the government, they may be able to continue to air them," he said.

Upon merger of their business, the name of DIRECTV will disappear from the Japanese market. However, Hughes may be able to save its face by taking some shares in SKYPerfectTV.

DIRECTV is running CS digital broadcasting business in the United States, Latin America and Japan. In the U.S., it is running its broadcasting business successfully. It has 8 million subscribers and revenues of \$12 billion. However, the business in Japan has been shabby, to say the least. Larry D. Hunter, chairman and president of DIRECTV Japan, said at the press conference on March 3 that he does not know the reason why his business in Japan failed to expand. Gareth C. C. Chang, a former chairman of DIRECTV Japan, had said that he was so excited to launch the business in "such an expectant market as Japan" just before DIRECTV launched its business in Japan.

On the other hand, SKYPerfectTV needed to conclude the deal as soon as possible. SKYPerfectTV is planning to be listed to the TSE by the end of fiscal 2000. To do so, the firm should conclude all of the capital movement by the end of March 2000.

In addition, BS digital broadcasting is scheduled for launch in December 2000.

Due to these reasons, SKYPerfectTV at last decided to allow shareholders of DIRECTV to have the same level of stakes in SKYPerfectTV as major shareholders of the SKYPerfectTV, such as Sony Corp. and Itochu Corp.

Trading Firms and Banks Struggle to Win CVS EC Channels

By Yaeko Mitsumori

Eight large firms in Japan including Seven-Eleven Japan in the beginning of January announced that they would jointly launch new e-business using Seven-Eleven's 8,000 outlets as an infrastructure. Their key words are the merger of "virtual" and "real."

As a model for a "Japanese style" e-business, the new business is winning much attention. Meanwhile, trading firms and banks are struggling with each other to win convenience stores (CVS) as their sales channels.

Now convenience stores are the hot topic.

Businesses are struggling each other to tie up with CVS because they believe that they can attract new customers and can keep customers by doing so.

Everyday several hundred customers visit a major CVS outlet. These CVS outlets, that are open around the clock, look attractive for other businesses as a channel to reach their customers. On the other hand, CVS whose sales have reached a ceiling due to harsh competition among them are looking for new services.

There are around 40,000 CVS outlets in Japan. The average sales for each outlet has been decreasing since fiscal 1998. Due to limited floor space, they can not expand the number of items they are dealing with. Now they are seeking a breakthrough with e-business.

Although there are a lot of expectations toward e-business, it has not taken

Continued on page 7

Joint Development of Next-generation Encryption Algorithm "Camellia"

NTT and Mitsubishi Electric

Nippon Telegraph and Telephone Corp. (NTT) and Mitsubishi Electric Corp. (MELCO) announced their joint development of "Camellia," a next-generation symmetric-key encryption algorithm. Next-generation symmetric-key encryption algorithms with high security and efficiency on various platforms are indispensable for ensuring the secrecy of corporate and individual private information in the advanced information society.

The new next-generation encryption algorithm Camellia is a symmetric-key encryption algorithm with a block size of

128 bits. It was developed by NTT and MELCO using NTT's cipher design technologies geared to high speed software implementation, MELCO's cipher design technologies for compact and high-speed hardware implementation, and state-of-the-art security evaluation technologies of both companies.

Camellia was designed to ensure security in usage for more than 20 years and to provide high speed in software and hardware implementation as well as compactness of hardware chips. Camellia therefore provides world's highest level performance in terms of effi-

ciency and practicality on various platforms.

Background

As the Internet has come into wide use, the protection of privacy has become an important issue. Cryptography is one of the keys that enable technology to solve this problem. To provide secure electronic commerce there is a particular need for next-generation encryption algorithms that can ensure both high security and efficiency on various platforms.

Encryption standards are being de-

Continued on page 8

Continued on page 7

Corporate R&D Series:

NTT Group to Provide New, More Attractive Services

Hidetoshi Shirakawa,
Director,

NTT Access Network Service Systems Laboratories

NTT Access Network Service Systems Laboratories (ANSSL) is taking a role of a locomotive for the NTT Group to provide new, more attractive services. Based on the ANSSL's recent achievements, both NTT East and NTT West are planning to launch "moderately priced," higher-speed data communications services using optical fiber soon. The Shared Access service is winning attention because the service using fiber optics but shared by more than one subscriber -- will be a first step for the FTTH (Fiber-to-the-Home), NTT's long term target. Moreover, NTT Communications Corp., another NTT operation company, will soon launch FWA (Fixed Wireless Access) services also based on an achievement of the lab. Furthermore, before NTT East and NTT West last December (1999) launched their ADSL services, the ANSSL conducted a field trial in order to examine the functionality of the system.

NTT Access Network Service Systems Laboratories is one of the four research centers under the Information Sharing Laboratory Group. The Lab Group is one of the three Lab Groups under the NTT Corp.

Among the four research centers, the Service Integration Laboratories and the Information Sharing Platform Laboratories are studying information sharing platforms. The Network Service Systems Laboratories, the third one, is studying core networks and the ANSSL is studying access networks. When Hidetoshi Shirakawa was assigned to the director position of the laboratories, the name of the lab was "Access Network Laboratories." However, NTT in January 1999 changed the name into the present one (ANSSL) in order to put more emphasis on services.

At present, under the strong leadership of Director Shirakawa, some 350 researchers at the ANSSL are promoting studies in wide areas: data transmission technology; optical cable system; home network system; WDM, wireless multimedia; construction technologies; and new businesses including environmental protection technologies.

According to Shirakawa, his laboratories have three missions to achieve: developing more efficient networks; creating new services which will help the operation companies to expand their revenues; and developing technologies that will contribute for the global environment.

Shirakawa said that it is responsibility for NTT, as the leading carrier, to provide middle- to high-speed IP access service at a reasonable rate utilizing not only optical fiber but also wireless and metallic networks.

Recent achievements

Shared Access

NTT operating companies are planning to launch the Shared Access service based on the technologies that the ANSSL developed very soon. Fully utilizing the advanced technology called passive double star (PDS), the ANSSL was able to reduce the total cost for the services to the same level as conventional services based on copper networks. Different from the FTTH, users of the Shared Access service will share one optical fiber among up to 32 users. By sharing one fiber among many users, the cost burden per user will be largely reduced. The system is consisting of an optical line terminal (OLT) at each subscriber home, an optical network unit (ONU) at each servicing NTT switching facility and optical fiber connecting the user's house with a nearby NTT office.

NTT Group has been promoting π (pie)-system (occasionally it is called fiber-to-the-poles) since 1997. (It is said that the system failed to expand because Tokyo Electric Power Co., Inc. (TEPCO) refused to supply electricity for ONUs on the electric utility poles.) Shirakawa said that the Shared Access and the pie system will coexist. According to him, the pie system is for voice services and the present π system users can subscribe to the Shared Access service if they want to use the higher-speed data services.

ADSL

Recently several firms including both NTT and non-

NTT companies started providing their ADSL services. Both NTT East Corp. and NTT West Corp. are providing their ADSL services at 4,300 yen per month excluding the Internet access charges. NTT Com, an NTT firm, is providing an Internet access services based on the ADSL service at 7,100 yen per month. Before these two NTT regional companies launched their ADSL services, the ANSSL conducted a series of field tests in order to clarify the functionality of the ADSL system and possible interference with the conventional services. Based on the result of the field test, NTT decided the service speed as 512 kbps for the descendant and 224 kbps for the ascendant lines.

Closed LAN

Using the network system to be constructed for providing the Shared Access, NTT operation firms are going to provide a closed LAN service.

In the areas where the Shared Access service will be provided, each NTT switch office will be equipped with an OLT and the device will be connected with an ONU at each subscriber's house. Fully utilizing the system, the NTT Group will be able to provide the closed LAN service by adding one panel at each OLT device. According to Shirakawa, technologically any subscribers of the Shared Access network service can receive the closed LAN service once they register with NTT.

FWA

NTT Com will launch its FWA (Fixed Wireless Access) services targeting corporate users based on the technologies developed by the ANSSL. NTT Com will offer two grades of service (1.5 Mbps and 45 Mbps). The ANSSL is also gearing up its study on FWA services for individual users. Different from the former type of FWA services using 22GHz, 26GHz and 38GHz, that latter type of FWA services for individual users will use 5GHz. Shirakawa said that the ANSSL has established all necessary technologies for the services.

Environment

It might sound unusual for an NTT research center, but the ANSSL is also gearing up its study for protecting the global environment.

The MPM (Micro Porous Material) is a by-product created in the process of recycling paper. At present, the sludge, the waste resulting from recycling paper, is thrown away as industrial waste. But the ANSSL successfully converted the sludge into the MPM, a new material which has strong absorbing capability. Fully utilizing the unique ability, Shirakawa said, the MPM can be used for purifying water, deodorizing the atmosphere and preventing concrete from being deteriorated by acid rain. The ANSSL is also studying for converting the absorbed materials into fertilizer.

BOTDR (Brillouin Optical Time Domain Reflectometer) is technology for measuring distortion on optical fiber. Using the technologies developed by the ANSSL, constructors can measure distortion of buildings, banks or tunnels by laying optical fiber in those facilities in order to prevent damages from natural disasters or accidents.

The BOTDR was already used for a Japanese yacht that participated in the 2000 America's Cup race which also allowed measurement distortions to the yacht.



Interview with Hidetoshi Shirakawa, Director

TT: What was your intention to develop the Shared Access service technologies?

Shirakawa: NTT has been offering leased line services using optical fiber networks for corporate users. However, since the service prices are quite high, the number of users has been limited. We have keenly felt that we should provide services that meet our customers demands for services with a higher speed at a reasonable charge. Actually we have the necessary technologies for providing such services. Last year we proposed our idea to operation firms' executives. They understood our idea and decided to provide the Shared Access services. President Miyazu in the beginning of this year (2000) declared that 2000 would be the first year of NTT's optical fiber services.

TT: Is the Shared Access an intermediary service until the FTTH?

Shirakawa: We think the Shared Access is a kind of the FTTH. It is because in order to provide the Shared Access services, we will deploy optical fiber network to each subscriber's house. If consumers want to receive services with a higher data transmission speed and higher quality (than the Shared Access service), then we will consider providing the higher grade services.

TT: NTT has repeatedly said that it will provide service with 10 Mbps data transmission speed at a monthly rate of 10,000 yen in the future.

Shirakawa: I think that the Shared Access service is very close to the target.

TT: Regarding the FWA service using 5GHz, when will NTT start providing the services?

Shirakawa: Since MPT is at the moment examining whether it can allocate the 5Hz band for the FWA service carefully, we can not say when NTT will be able to provide the services right now. At the moment, the band is being used by weather radar.

TT: Is the FWA service different from AWA (Advanced Wireless Access)?

Shirakawa: We called the FWA services EWA (Ethernet Wireless Access). We have already established all of the necessary technologies for the EWA. We think the AWA, which guaranties a certain bandwidth, is a more futuristic service.

TT: I understand that the 5GHz band can be used for indoor use.

Shirakawa: Right. But we are aiming at providing public communications services using the 5GHz. That means the services should be outdoors.

TT: Regarding the environment protection studies, what is your intention for promoting such studies?

Shirakawa: We have been promoting our studies focusing on communications. But during our such efforts, we occasionally got some research results that are not directly related to communications (such as environment protection). It is easy for us to stop such non-communications studies. However, we are determined to promote such non-communications studies, too, because we found new business opportunities there.

TT: If these non-communications studies go well, will NTT companies sell some products for protecting the global environment?

Shirakawa: In order to deal with these environmental protection goods and/or services, NTT operation firms may tie-up with non-NTT firms or other firms in the NTT Group. We do not care with whom they will work cooperatively. We are glad if our research result can produce a good business.

TT: Generally speaking most of your lab's study topics are closely related to the current NTT business directly.

Shirakawa: Right. We are responsible for gearing up our studies that will contribute for NTT business within 2 to 3 years. Another laboratory group called Science & Core Technology Laboratory Group is doing more futuristic studies.

NTT Submits Business Operation Plan for FY2000 to MPT for Approval

Nippon Telegraph and Telephone Corp. (NTT) submitted its business operation plan for the fiscal year ending March 31, 2001, to the Minister of Posts and Telecommunications for approval.

Business Operation Plan for FY2000 (Ending March 31, 2001)

In the building of an advanced information society, information and communications are expected to make a substantial contribution to invigorating and enhancing the efficiency of socio-economic activity, and as needs grow more sophisticated, diverse, and global in character, the market for them will expand and develop further. In addition, rapid progress toward a multimedia age is a global trend, powered by the substantial strides that are being made in technological innovation.

To help ensure that universal services are maintained amid this environment for information and communications, NTT intends to provide necessary advice, mediation, and other assistance to Nippon Telegraph and Telephone East Corp. and Nippon Telegraph and Telephone West Corp. (the "East and West Regional Companies"). It will also endeavor to promote R&D in the sphere of telecommunications technology -- the base on which telecommunications function -- in order to respond to social requirements for the development of multimedia.

In addition, NTT intends to utilize the total management resources of its corporate Group, and R&D capabilities, to foster active Group management that will bring about the development of the entire Group.

In the management of business operations for FY2000 ending March 31, 2001, based upon this fundamental thinking it is NTT's aim to enhance the efficiency of the management of NTT subsidiaries and affiliates (the "NTT Group") operations, including those of the East and West Regional Companies, to expand new businesses with the aim of enhancing the circulation of information, and to continue to strengthen R&D that will contribute to the advancement of telecommunications. In this way NTT will seek to ensure the stable development of the NTT Group operations in the future, so as to enable it to return the fruits of these efforts to customers, shareholders, and the community at large.

Based on this thinking, under the business operation plan for FY2000, NTT will conduct its business management by giving priority to the following categories,

and will do so in a flexible manner so as to respond to changes in the operating environment.

1. Advice, Coordination, etc.

For the East and West Regional Companies, NTT will provide all necessary advice, coordination, etc. to ensure the maintenance of high-quality and stable universal services. These will include planning and coordination relating to the quality and upgrading of telecommunications networks, the deployment of control and coordination capabilities when natural disasters and other emergencies occur, efficient fund-raising and the formulation of policies for materials procurement, and intra-NTT Group coordination to ensure the smooth implementation of the Midterm Restructuring Plan that was announced in November 1999 in light of the harsh operating environment facing the East and West Regional Companies. NTT will also exercise its shareholder rights, if necessary, for such purposes as assuring the smooth flow of dividends to shareholders.

For all the NTT Group companies, NTT's other activities will include research for the purpose of cultivating new business activities, management support for operations such as business expansion and withdrawals from business activities, and assistance with the development of human resources that form the core of the NTT Group.

2. Promotion of Fundamental Research and Development

To meet the growing demands of society for the development of multimedia, the harmonious development of network infrastructure technologies, network services and application technologies, and advanced and basic technologies is indispensable. NTT will work toward the realization of (1) an affluent Electrum Cybersociety, in which information, products and money circulate electronically (2) the Megamedia, the higher transmission speed and less

expensive network services, and (3) next-generation infrastructure that achieves ultrahigh transmission speed and ultralarge-capacity communications.

NTT will continue to actively disseminate the results of its research and development and will conduct active technical interchanges with institutions both within Japan and overseas, including through ongoing contributions to standardization activities, industry standardization of R&D results, and R&D in collaboration with other research institutions.

To ensure the continuous implementation of this fundamental research and development, the costs will be continuously borne by the companies including the East and West Regional Companies which will benefit from the results of this research and development.

More specifically, NTT will conduct R&D activities as follows:

1) Network Systems

In order to provide the "Megamedia" network services of the future that will bring about the sophisticated telecommunications networks and the economical transmission of signals ranging from low-speed, narrowband to high-speed, broadband, NTT will promote R&D in the sphere of network technologies, including technologies for constructing economical access networks, technologies for building flexible networks for diverse network services, and next-generation IP network technologies. NTT will also promote fundamental research and development of operation systems to improve the reliability of telecommunications networks and the quality of service. Cognizant of the sharp increase in energy consumption induced by the full-scale multimedia development, NTT will promote R&D to help reducing the

electric power usage.

2) User Systems

To realize the "Electrum Cybersociety" for electronically transmitted information, products and money on the sophisticated telecommunications networks, NTT will promote R&D that will provide customers with a safe and convenient information platform for electronic commerce. Specifically, it will be conducted in such areas as security technologies to ensure the safety of information-communications; technologies for e-commerce transactions, such as billing, authentication, and authorization; information-sharing technologies for flexible information sharing under various network environments; media-processing technologies such as compression and recognition of video and voice data; and multimedia database technologies for the multimedia data storage and searching of a variety of media.

3) Basic and Core Technologies

With a view to securing leadership in basic and core technologies that will underpin the info-communications of the future, and to contribute to the creative advancement and development of telecommunications in Japan, NTT will devote its attention to the creation of a photonic network that makes it possible to achieve ultrahigh-speed, ultrahigh-volume terabit- and petabit-level communications, in preparation for an age in which massive volumes of digital information circulate through networks. To this end, NTT will seek out the potentialities of technologies such as wavelength division multiplexing and other new optical communications technologies; technologies for optical components such as optical amplifier, optical wavelength division multiplexer/demultiplexer, and optoelectronic fusion devices; and technologies for optical information processing, and will promote R&D in such areas as nano-electronics and new materials with new characteristics. This will be combined with research seeking for innovative new principles and new concepts for the next-generation.

Plan of Sources and Applications of Funds for FY2000

(billions of yen)

Division	Amount
Sources:	
Operational:	465
Operating Revenues	357
Non-Operating Revenues	108
Financial:	938
Long-term Loans and Bonds	132
Others	806
Estimated Consumption Tax	14
Brought Forward from Previous Fiscal Year	5
Total	1,422
Applications:	
Operational:	673
Operating Expenses	577
Non-Operating Expenses	96
Financial:	577
Capital Investments for Property, Plant and Equipment	52
Other Financial Expenses	525
Closing Account Expenses	85
Temporarily Paid Consumption Tax	10
Carry Forward to Following Year	77
Total	1,422

Capital Investment Plan for FY2000

(billions of yen)

Item	Investment required
1. R&D facilities	43
2. Other facilities	9
Total	52

Revenues and Expenses Plan for FY2000

(billions of yen)

Division	Amount
Revenues	
Operating Revenues	364 (Note)
Non-Operating Revenues	108
Total Revenues	472
Expenses	
Operating Expenses	253
Non-Operating Expenses	100
Total Expenses	353
Recurring Profit	119

Net strategy

Technology Companies Are Changing into E-companies

Since Internet took off in Japan upon release of Windows 95, e-business has been promoted by mostly venture companies. But they are now changing their position over the Internet. Japanese traditional, big firms have been just using IP technologies, selling Internet-related products and services on a small scale or investing into Internet ventures. But they are going to change themselves into Internet companies placing the Internet as their core business. To do so, large firms are going to change their corporate structure, pour more resources into Internet-related business and work out as well as implement a new business model.

NEC

NEC Corp. is the largest PC vender in Japan. Until the 1980s, the firm was occupying 70% of the Japanese computer market. But the NEC is going to turn its target from computers to solution business.

Koji Nishigaki, President of NEC Corp., declared that NEC would be an "Internet Solution Provider" by focusing its business on Internet-related business.

According to its midterm plan, NEC will expand its revenues from Internet related business in fiscal 2001 (ending at the end of March 2002) to 5 trillion yen. It will comprise of 1.5-1.6 trillion yen from information business including system construction and services; 2 trillion yen from communications business using both conventional technology and IP technology; and 1 trillion yen from semiconductor business focusing on system LSI.

Along with the midterm plan, NEC will divide its firm into three divisions — NEC Solutions, NEC Networks and NEC Electron Devices on April 1, 2000. In prior to the division, NEC in October 1999 formed the Internet Business Strategy under President Nishigaki in order to work out clear Internet business strategies.

The key of NEC's Internet business is "Biglobe." The Biglobe with 2.72 million subscribers is the second largest ISP in Japan after @Nifty. By strengthening its infrastructure by spending 30 billion yen investment money, NEC is planning to expand the number of subscribers to 10 million by September 2002.

In November 1999, NEC started providing Internet oriented solution services under the brand name of "ibest solution." (NEC had been providing total e-business solution services -- from website construction, operation to credit card settlement even before November. Bunkyodo, a major bookseller business, is one of NEC's customers, but the business is still small.) In order to promote e-business in a short time, NEC has tied up with major foreign Internet businesses one after another. In September NEC tied up with Intel over Internet business. In November it also tied up with Oracle and Hewlett Packard also over the Internet business.

Since assuming the presidential position of NEC in March 1999, President Nishigaki has carried out drastic restructuring measures: Nishigaki decided to disband deficit-ridden NEC Home Electronics. In order to recover the special loss of 180 billion yen due to the liquidation of the subsidiary, NEC decided to sell the headquarters building.

However, NEC still has a piling of problems: NEC has trouble-ridden Packard-Bell NEC. Much worse, NEC's three main business areas -- computers, communications and semiconductors -- are still gloomy and the firm has not found any efficient remedy for their recovery.

Due to a drop in market prices of semiconductors and gloomy sales of communications and networking machinery and devices, NEC reported 50 billion yen deficit in September 1999. All of the high technology firms in Japan have been suffering from gloomy business achievements for the past couple of years. However most of the other firms successfully cleared the debts by reporting huge special loss by spring of 1999. But NEC delayed taking drastic action. Now NEC has to do two jobs simultaneously: revising the business structure into a more profitable one, while clearing huge accumulated debts.

Hitachi

Hitachi, Ltd., the largest electric machinery manufacturer, is also going to revise itself from a manufacturer into a solution business. Etsuhiko Shoyama, President of Hitachi, declared that Hitachi will become the best solution partner (for its customers).

According to its midterm business plan called "i.e. Hitachi" targeting fiscal 2002 (ending at the end of March 2003), Hitachi will concentrate all of its resources on information related business. Unusual for the very traditional firm, Hitachi will spend 300 billion yen to purchase (or concluding business alliances with) Internet-related businesses. The firm will also increase the number of its systems engineers by 7,500.

By achieving these measures, Hitachi will expand its operational profits to 560 billion yen in fiscal 2002. By expanding its information, electronics and service business, Hitachi will expand its total revenues by 6% annually and increase its ROE (return on equity) to 8%.

Like other many traditional Japanese firms, Hitachi has long maintained a self-sufficient policy. But Hitachi scrapped its old policy. Shoyama explained that it is because the speed is very important today. Listing up 60 candidates (all IT-related firms), Hitachi is now closely examining them.

On April 2000 Hitachi will found a new firm in order to launch B-to-C business. Although Hitachi has been dealing with B-to-B business by offering TWX-21, it has not been done any B-to-C business.

Hitachi decided to shift its business focus to the Internet because its IT related business has been shrinking due to

declining in its hardware sales. Hitachi is the top "all-round" electric machinery manufacturer. However, all of its core business -- consumer electronics, heavy electronics and industry system business -- are matured and it cannot expect rapid expansion in those areas. Unless it shifts its business focus to the Internet related business, it is impossible for the firm to achieve 8% ROE.

Toshiba

Toshiba Corp., another leading all-round electric machinery maker, is also going to change itself into an Internet oriented firm.

Toshiba has been doing B-to-B business fully utilizing its strength in hardware, but the firm's B-to-C business has been limited. In order to expand its B-to-C business, Toshiba on April 1 will establish a new division called i-Value Creation Company (IVC), which will exclusively deal with B-to-C business. Furthermore the firm will gear up its B-to-B business putting an emphasis on outsourcing business. By gearing up both B-to-B and B-to-C business, Toshiba is aimed at expanding its Internet related business from the current 100 billion yen to 500 billion yen by FY2003.

According to the firm's mid term business plan, the firm will achieve the target by getting revenues of 500 billion from the B-to-C business and 350 billion yen from the B-to-B business including information distribution services. In order to promote these Internet related business, Toshiba will invest 120-130 billion yen for constructing a data center, another 70-80 billion yen for creating new business and 50 billion yen for R&D activities.

Under the current system, several sections of Toshiba are dealing with Internet related business. But once IVC is established, all of the net related business at Toshiba will be shifted to the division. The IVC is targeting to become the top ISP for mobile gears.

In order to promote its content business, it will strengthen its ties with AOL and Time-Warner.

In the terminal business, Toshiba will be putting an emphasis on mobile net devices (rather than devices for fixed

lines) using advanced technologies such as Blue tooth.

As the very first Internet content service of the firm, Toshiba will start providing stock information services for customers of Matsui Securities Co., Ltd., in April 2000. Besides the stock information, Toshiba is planning to provide information services in a wide variety of areas such as financial, travel, music distribution and books.

In the area of services for corporate users, Toshiba will launch outsourcing business including application service providers (ASPs), procurement over the net, and broadcasting services. In case of ASP, Toshiba will focus on small-to-medium business. In the field of broadcasting business, Toshiba will launch e-business through Mediaserve Corp., a subsidiary of Toshiba which was established for launch of data broadcasting services.

The company itself will become an "e-company" in 2001 when all of the procurements of Toshiba will be done through the Internet. By that time all of the firm's business from development, designing, ordering to sales will be done by electronically. As the very first case, Toshiba's Fuchu factory will introduce an all-electronic system in April 2000.

Conclusion

Market basically welcomed these big firms' Internet-oriented strategies. The stock prices of these firms increased just after they announced their Internet oriented strategies. But analysts' comments over these strategies are mixed. Scott Foster, an analyst at Lehman Brothers, said NEC has a chance to become an e-company. He said that using advanced technology of Biglobe, NEC may successfully expand B-to-B business. Everybody agreed that Hitachi has been behind in the Internet business. But Satoshi Hirachi, a senior analyst of Société Général Securities, said that Hitachi has a chance to become the first runner in the Internet business, partly because Hitachi has a lot of advanced technologies that are needed for developing the Internet, and partly because Hitachi has two software subsidiaries that seem to take vital role for the Internet business.

Now all of the firms presented their beautiful business strategy focusing its business on both SI (systems integration) and the Internet business, fully utilizing resources both outside and inside these firms. What they need now is implementing the plan aggressively.

NTT DoCoMo

i-Mode Subscribers Exceed 5 Million

NTT Mobile Communications Network, Inc. (NTT DoCoMo) announced that on March 15 it registered the five millionth subscriber to its i-Mode service, which provides direct access to the Internet via cellular phones.

DoCoMo launched the i-Mode service just 13 months ago. It previously forecast that subscribers would total about 4.8 million users by the end of March, so i-Mode's popularity has exceeded even DoCoMo's high expectations. A chief reason for the success is that websites can be adapted to the i-Mode easily and quickly, since the system uses the Web-based HTML programming language.

A total of 356 companies were using DoCoMo i-Mode portal Websites to provide mobile online services such as banking, news and games, as of March 15.

In addition, more than 7,000 independent Websites not connected to the portal are also accessible via DoCoMo's i-Mode service.

Carrier News

KDD

Investment in Hong Kong Broadband Network Ltd. -- Deployment of Internet Business in Hong Kong --

KDD Corp. signed an agreement with City Telecom (H.K.) Ltd. ("CTI"; Chairman: Mr. Ricky Wong Wai Kay; Main Office: Hong Kong), the second largest Internet connection and international telephone service provider in Hong Kong, and its subsidiary, Hong Kong Broadband Network Ltd. (HKBN) on KDD's investment in HKBN.

KDD acquires 15% of HKBN's shares with the investment of HK\$ 225 million (about 3,375 million yen).

HKBN will launch at an early stage the broadband Internet connection service using FWA (Fixed Wireless Access) for which the company has obtained a new license, as well as succeeded to the ISP business now being provided by CTI. The launch is the first case in Hong Kong as a full-fledged commercial communications service using FWA.

KDD has so far provided the international telephone service, the dedicated circuit service, the engineering service, etc., in Hong Kong through its 100% subsidiary, KDD Telecomet Hong Kong (President: Takayuki Kawakita; Main Office: Hong Kong). KDD will, in response to the progress of deregulation in Hong Kong, promote more positively than ever its business deployment in the Internet market there through investment in HKBN.

IT Industry

NEC

Similar "Ultrafast Hot Standby Function" as Mainframes in Open Platform Core Banking System Achieved

NEC Corp. announced that it has achieved 50 seconds level fail-over time in open platform core banking systems for financial institutions when trouble rises. This is approximately one-tenth of the time measured previously. This result was achieved at NEC Financial Solution Center in NEC Systems, Inc. located San Jose, California.

The achievement that reached 50 seconds level fail-over time made signifi-

cant reduction in fail-over time in the open platform and it is almost same performance as current mainframe based core banking systems used in major metropolitan banks. From the result of this, NEC can provide high reliable system with approximately 30% less implementation cost than mainframe through its open platform based core banking system, BankingWeb21.

This achievement of ultrafast hot standby function is a result of strategic alliance which NEC made with Hewlett-Packard Company (Chairman and CEO: Carly S. Fiorina; Headquarters: Palo Alto, California; HP), Hewlett-Packard Japan, Ltd. (President: Masao Terazawa; Headquarters: Suginami-City, Tokyo, Japan; HP Japan), Oracle Corp. (Chairman and CEO: Lawrence J. Ellison; Headquarters: Redwood Shores, California; Oracle), Oracle Corp. Japan (President: Chikara Sano; Headquarters: Chiyoda-City, Tokyo, Japan; Oracle Japan), BEA Systems, Inc. (Chairman and CEO: William T. Coleman; Headquarters: San Jose, California; BEA) and BEA Systems Japan Ltd. (President: Motoi Inoue; Headquarters: Yokohama City, Kanagawa, Japan; BEA Japan) in July 1999.

NEC has been implemented various most advanced technologies through cooperation with HP, Oracle and BEA for its BankingWeb21. As the result of this, NEC has achieved reduction of time from finding troubles to notification to software components and reboot of application software. Following most advanced technologies from each allied company has been implemented.

1. HP

HP has provided core functions including high reliable technology that is capable HP-UX based UNIX server to run 24 hours, 365 days (still developing) and high expansibility.

2. Oracle

Oracle has provided its new Oracle8i Release 2 (R8.1.6) which will be distributed in late April in Japan. Also Oracle has provided Oracle Parallel Fail Safe which provides fast recovery function during system troubles. It is a function from Oracle Parallel Server, an optional product for Oracle8i Release 2 (R8.1.6). Oracle is planning to ship this within this year.

3. BEA

BEA has provided a new online transaction monitor, BEA Tuxedo, with HP-

UX/Oracle functions and is planning to ship this summer.

For NEC's financial solution, Global Banking Solution, NEC is developing its software not only in Japan but the US, India and China along. Also, NEC is focusing on this ultrafast hot standby function as a key theme and planning to develop flexible products to meet customization needs, providing them as packaged products.

NEC has received number of orders such as Yachiyo Bank (President: Tomoaki Fujiyama, Headquarters: Shinjuku-City, Tokyo), Ehime Bank (President: Akira Nagao, Headquarters: Matsuyama City, Ehime), and Biwako Bank (President: Tsuaki Isshiki, Headquarters: Shiga). NEC is planning to ship all systems from April.

NEC and SANYO Electric Form Tie-up for TFT LCD Driver ICs

NEC Corp. (NEC) and SANYO Electric Co., Ltd. have agreed to a tie-up in the field of TFT LCD driver ICs. The aim is to meet market demands for a stable supply of these key components.

To meet this goal, the companies will raise the monthly production total of NEC-compatible TFT (thin film transistor) LCD (liquid crystal display) driver ICs to 13 million units from a current level of 9 million units. The increase of four million units will be achieved through outsourcing by NEC from SANYO of 2 million units per month, and production of 2 million units per month by SANYO under its own brand from autumn 2000.

Implementing the tie-up, NEC will provide SANYO with design and manufacturing technology for the driver ICs, while also outsourcing production of the ICs to SANYO, which will also begin production and sales of the ICs.

The monitor market for personal computers is quickly seeing the replacement of cathode ray tube (CRT) technology with TFT LCDs because of their merits for saving space and power, as well as being easier on the eyes of users and offering better potential for interior designs. Together, the monitor and notebook PC markets are seeing a rapid rise in demand for TFT LCD panels particularly in the most commonly used large 12- to 15-inch size range, which is seeing the most spectacular growth of all.

TFT LCD driver ICs, which effectively drive the screen are the most important component of all. Because the ICs require high-withstand voltage semiconductor process technology, the number of manufacturers worldwide is limited, and the search for suppliers has continued since spring last year.

Among LCD panel manufacturers, there has also been a drive to improve module production efficiency by increasing the number of common components between models. Between manufacturers, however, there are still many detailed differences in the driver ICs they use, resulting in a lack of compatibility between components used by each manufacturer. This is creating a strong desire on the part of panel manufacturers for common TFT LCD driver IC specifications to ensure a stable, large volume supply.

NEC lead the way to using TFT LCDs for office automation equipment in 1990 by introducing the world's first driver ICs. Since then, progress with finer and high-withstand voltage process technologies has enabled LCDs to offer the high quality display capabilities necessary for their use in the PC monitor market. NEC is now the leading manufacturer of TFT LCD driver ICs with a 30% share of the market.

SANYO has been involved in the STN (super twist nematic) LCD driver IC busi-

ness, and, through the tie-up with NEC, it will be able to prepare the finer and high-withstand voltage process technologies needed to produce TFT LCD driver ICs. This will bring about SANYO's entry to the TFT LCD driver IC business but production will begin before that time.

Equator and Hitachi

MAP-CA Processor Introduced

Equator Technologies, Inc. and Hitachi, Ltd. announced sampling availability of the MAP-CA (Media Accelerated Processor for Consumer Appliances). The MAP-CA, the third-generation MAP processor, could establish a new world standard for cost-effective image computing. The MAP-CA is expected to change digital television (DTV) product design and development from a hardware-centric to a software-centric approach.

According to Hitachi, the joint development with Equator gives birth to a very powerful product with new concept of software solution. Hitachi noted that it strongly believes that together with other Hitachi microprocessor products, MAP-CA will help form a family of de facto standard microprocessors for information appliances in the Internet era.

The single-chip MAP-CA delivers an unprecedented 30 GOPS (Giga-Operations Per Second) of processing power while programming in a high-level C-language. Programming only in C enables all-software HDTV decoding, video time shifting, full-screen streaming video and video teleconferencing. It also offers a host of other functionality to be delivered at the price of single-function digital television products much faster than today's fixed function design approaches. Using the MAP-CA and the SofTV (Software TV) applications available from 3rd party ISV's, television- and imaging-centric appliances can keep up with the rapid pace of change of the Internet while offering the best picture quality, capabilities, field upgradability via software downloads and lowest system cost.

Pricing is US\$40 in quantities of 200,000. On any additional details concerning delivery or pricing please contact Equator or Hitachi representatives. Samples are available now, with volume production slated for summer.

Hitachi

Awarded Contracts for Internet-Based Technical Service Agreements with Canadian Power Companies

Hitachi, Ltd. announced that it has entered into Technical Service Agreements (TSAs) with two Canadian companies, ATCO Power, Ltd. in January and SPC (SaskPower Corp., Ltd.) in February. The TSAs are part of Hitachi's Medium-term Business plan called the i.e. HITACHI Plan to become a "best solutions partner."

These are the first TSAs that Hitachi has formed with Canadian companies, and the agreements call for Hitachi to provide a fast response on a 24 x 7 basis to customer requests received via the Internet.

Over the past 30 years, Hitachi has delivered 19 steam turbines to seven power companies in Canada. As the majority of these facilities have been in operation for more than 20 years, they need technical support to be maintained effectively to enhance their utilization rates and operate efficiently.

In response to these requirements, Hitachi began discussing TSAs with Canadian power companies roughly a year ago leading to the official signings in January and February 2000.

The Telecom Tribune now accepts subscription payments by VISA or MasterCard!

To make a payment on your credit card, please fill in the form below and send it by fax, or mail to the Telecom Tribune Circulation dept. Our fax number is +81 3 3294-9066.

You can also make a credit card payment online by using our SECURE payment system.

Please visit <http://www.telecomtribune.com> for more details.



Card Number:

Bank Name and Country:

Expiry Date:

Account Holder (full name):

Telephone Number:

I, the undersigned, hereby authorize payment to InterSphere Media Group and/or its divisions, Global Network Technology, Telecom Tribune and Asia Broadcasting Co. for the following invoice and amount:

Invoice No.: Amount: US\$

In addition, I assert that I am the authorized user of this credit card account and that I am proceeding with this transaction within the terms of all rules, regulations, and policies, both foreign and domestic, governing its use.

X

IT Industry

Fujitsu

Installs World's Largest Private Enterprise Supercomputer System for Toyota Motor Corp.

Fujitsu Ltd. announced that it has received an order from Toyota Motor Corp. for a multi-processor VPP5000 Series HPC Server -- the world's fastest vector supercomputer -- which it has installed and will be fully operational later this month. The Fujitsu VPP5000 system selected by Toyota comprises 30 vector processing elements (PEs) and has a theoretical maximum performance of 288 gigaflops (GFLOPS). With 320 gigabytes of memory installed, it will be the world's largest supercomputer system installed in a private enterprise.

Toyota has previously used a Cray Research supercomputer for crash analysis and vibration analysis, and a Fujitsu VPP300 system for fluid analysis and press analysis. The installation of the Fujitsu VPP5000 supercomputer will allow all these analytical tasks to be integrated into the new system. Moreover, the Fujitsu VPP5000 system is expected to help greatly reduce the time required for carrying out advanced crash safety, ride comfort and environmental impact analyses, tasks that have become increasingly burdensome in the new car development process. In so doing, the system will help Toyota further improve vehicle performance, while contributing to significant reductions in development costs and time.

In tests of Toyota's analytical applications, Fujitsu's VPP5000 system demonstrated very high performance, topping previous processing speeds by a factor of five. In addition, the software vendors who are providing the analytical applications are collaborating closely with Fujitsu to implement comprehensive system support.

Fujitsu has sold more than 400 supercomputer systems worldwide. Such systems are being used by a wide range of users, which include not only automobile manufacturers but also makers of electrical machinery, users in the heavy industry and construction fields, as well as universities and research institutes. Fujitsu is currently the vector supercomputer market leader in Japan and ranks second worldwide. The installation of the VPP5000 system for Toyota reflects growing demand for analytical high-performance computing systems in the automotive industry, a segment toward which Fujitsu intends to expand its sales activity.

Fujitsu's VPP5000 Series supercomputer has a maximum performance of 9.6 gigaflops per each processor, and has the world's fastest vector CMOS processor. The series is at the leading edge of supercomputer technology, with scalability to 512 processors, and maximum performance of 4.9 teraflops (TFLOPS).

Toshiba

Stacks 8Mb SRAM and 64Mb NOR Flash Memory In Multi-Chip Package Product

Toshiba Corp. announced that it is set to become the first company in the world to integrate an 8Mb SRAM and 64Mb NOR flash memory in a single multi-chip package (MCP), a move that will support design of slimmer cellular phones.

Explosive growth in the mobile phone market is driving demand for NOR flash memories, used to store programs and data, and for low power consumption SRAMs, which support system operation by temporarily holding data for the CPU while it executes other tasks. Toshiba has employed the most advanced process technology available to shrink the size of SRAM and NOR flash memory chips and to combine them in an MCP only 9mm x 12mm.

The new MCP will be available in two architectures of boot block, TH50VSF3680AASB and TH50VSF3681AASB. Both are 56-ball Signal Ball Grid Array (BGA) packages and stack an 8Mb SRAM and a 64Mb NOR flash memory designed with 0.22m and 0.2m process technology, respectively. Samples will be available from end of March 2000 at a unit price of 10,000 yen and mass production will start from April 2000.

Toshiba is also ready to begin mass production of two new 8Mb SRAM supporting offering access speeds of 55 nanoseconds (ns) or 70 ns, and a new 64Mb NOR flash memory offering the smallest chip size in the 0.2m process generation. Production of the SRAM will begin in March, and samples will be made available at 4,000 yen; the 64Mb NOR flash memory will start production in April, and samples will be priced at

6,000 yen.

The range of MCP products will be extended by a device stacking a 4Mb SRAM and a 64Mb NOR flash memory that will start sampling in April 2000.

Outlines of Products

- World's first mass produced MCP stacking 8Mb SRAM and 64Mb NOR flash memory
- Compact package size: 9mm x 12mm, employed the most advanced process technology in SRAM and NOR flash memory
- Conforms to MCP specification finalized by Fujitsu, NEC and Toshiba
- Pin assignments of SRAM and NOR flash memory are almost compatible.
- Optimized ball pitch: 0.8mm
- Read while write (RWW) function in 64Mb NOR - data read and writes data can be executed concurrently.

Toshiba

New NOR-type Flash Memory Prevents Data Loss During Operation

Toshiba Corp. announced the world's first 64-mega-bit (Mb) NOR-type flash memory supporting the Read While Write function. The TC58FVT/B641 allow read operations to be performed during program and erase operations.

The Read While Write function allows data to be simultaneously read from memory bank while being written to another one. In practical terms, the chip supports improved functionality for digital products. For instance, when cellular phone users receive an incoming call while saving a file or updating the phone's address book, CPU operation (speaking on the phone) does not cancel the write operation.

Toshiba's new 64Mb NOR-type flash memory adopts 0.2m CMOS technology with a channel erasing scheme and shallow trench isolation (STI). The result is the smallest chip yet to be brought to mass production and equally impressive performance characteristics: a power consumption of 2.7 to 3.6V and a random access time of 100 nanoseconds.

The fast growing markets for cellular phones and mobile terminals are the main demand centers for NOR-type flash memory. As personal digital products get smaller and offer more functions and applications, smaller flash memory chips offering a larger capacity, higher access speed and lower power consumption are a must. Toshiba seeks to take the lead in meeting this demand with its new chip. It will also seek to meet an even wider range of customer needs with a 32Mb NOR-type flash memory utilizing the same architecture as the 64Mb chip, which will be introduced in April.

Samples of the new 64Mb chip will be available at the end of March at a unit price of \$60 and mass production will begin in April. The company aims to reach a production level of over 500,000 units per month by fall.

Matsushita Electric (Panasonic)

Develops a Decoding System for High-quality Digital Video Distribution Network at the American Museum of Natural History

Matsushita Electric Industrial Co., Ltd, best known for its Panasonic brand products, has developed an innovative decoding system to continuously decode and display high quality digital video distributed over a network. The company will install the new decoder this summer in the American Museum of Natural History's "Hall of the Universe," which is a part of the new "Rose Center for Earth and Space," opening on February 19th at the museum. This will be the first installation in a major museum of a digital video distribution network capable of such high quality video images.

The new Rose Center provides visual information about the universe and the earth by using digital technologies to educate museum visitors and broaden their perspectives on the universe and the planet earth. With this aim, the museum has worked with MEI to establish a state-of-the-art digital network distribution and terminal system that delivers high quality video in the 480-line progressive scan format, and in the future, even higher definition video images. This new decoding system enables the AMNH to take advantage of the latest technology to utilize live video and computer graphics to enhance the overall experience.

Network distribution systems using this new decoding system are suitable for exhibitions and educational facilities such as museums, galleries, libraries and schools. Matsushita Electric has already devel-

oped this type of network distribution concept in a system called Panasonic Video Shower. In the near future, higher quality pictures and lower costs will likely be realized by using this software-oriented approach.

"Progressive-scan video is best suited for the live video and computer graphics of this new digital museum display and it will offer a new experience to the visitors to the 'Hall of the Universe,'" said Mr. Smokey Forester, Science Bulletin Manager of the American Museum of Natural History.

MPEG-2 Decoder Powers Exhibit

In this network distribution system, the museum's server distributes digital video data and computer graphics through the network to audio-video terminals in the exhibit where audiences can view the high quality MPEG-2 pictures. The core of the system is based on the technology from the ongoing relationship between Microsoft and Matsushita Electric. This new MPEG-2 decoding system features an MPEG-2 decoder/driver with real time PCI (Peripheral Component Interconnect) transfer and data streaming software.

The MPEG-2 decoder card/driver achieves the real time data transfer of the MPEG-2 stream over the PCI interface with newly developed Software-based Predictive Buffer Management (SPBM) system. Because PCI is asynchronous in nature, the conventional PCI transfer method sometimes causes frame drops of the MPEG-2 bit-stream even if buffer memory is used for the PCI bridge device. SPBM is a buffer control method controlled by software to predict hazardous overflow or underflow of the buffer, and to maintain the continuity of the transferred MPEG-2 stream even at a high bit-rate of HDTV. In addition, this technology offers more flexible system design compared with previous hardware approaches.

OpenTV and Panasonic

Form Strategic Alliance to Deliver Multimedia Home Platform-Compliant Interactive Television Solutions

-- Agreement Establishes Clear Expansion Path For MHP-Compliant Digital ITV Set-Top Boxes and Programming --

OpenTV, the leading worldwide provider of software that enables digital interactive television, and Matsushita Electric Industrial Co., Ltd., the world's leading electronics company best known outside Japan by its Panasonic brand name, announced a new, long-term strategic alliance.

Through this alliance, Panasonic and OpenTV will cooperate on the development of a fully MultiMedia Home Platform (MHP) compliant extension to the OpenTV operating platform. MHP is a DVB (Digital Video Broadcasting) specification for an interoperable interactive television platform based on Java technology.

This agreement represents a tremendous step forward in the global initiative towards strengthening the position of MHP as an emerging standard platform for interactive television.

Technical Information Disclosure

City Cable Shunan K.K. (CCS)

CCS disclosed a technical document pertaining to its Internet connection service called "CCS Net," scheduled for launch on September 1, 2000. This document describes interface conditions of terminal equipment to be connected to CCS's facilities for the service.

CCS was granted a Type I telecommunications carrier license by MPT on March 8.

For further information, contact:
Mr. Youichi Kohama,
Media Service Division,
City Cable Shunan K.K. (CCS)

Mainichi-Kogyo Bldg., 4F. 18, Ginza 2-chome,
Tokuyama City, Yamaguchi Prefecture, 745-
0032, Japan
Tel: +81-843-21-2647
Fax: +81-843-32-5704
URL: <http://www.ccsnet.ne.jp>
E-mail: ccs@ccsnet.ne.jp

Convenience Store:*Continued from Page 1*

off yet in Japan. It is because Japanese tend to prefer picking up purchased goods at a store rather than door-to-door delivery and tend to prefer pay with cash rather than settlement with a credit card.

Akira Kamoshida, of the Japan Research Institute, said that convenience stores will solve the psychological hurdle of Japanese toward e-commerce.

On January 6, Seven-Eleven with other seven leading companies announced that they would jointly establish "7dream.com" and declared that it would launch a comprehensive e-business using both a multimedia terminal (a kiosk) as well as a web site.

As its partner the largest CVS in Japan picked up all big names such as NEC, Sony, Mitsui, Nomura Research Institute (NRI) and JTB.

At the press conference, Toshifumi Suzuki, Chairman of Seven-Eleven, said "We formed a dream team for Japanese style e-business."

The new firm "7dream.com" will initially provide merchandize in eight areas including books, cars, package tour and music. It will provide services not only through the multimedia terminals that will be placed in each of Seven-Eleven's 8,000 outlets and PCs at home, but also through cellular phones (such as i-Mode) and home video game machines (such as PlayStation2).

Fully utilizing the Seven-Eleven's 8,000 outlets where a total of 7.7 million people come down for shopping every day, the new firm is targeting to get 300 billion yen in sales in fiscal 2003. Nobuyuki Miyaji, a spokesperson of Seven-Eleven, said that the new firm will invite more content providers to 7dream.com besides the original eight companies.

The announcement by Seven-Eleven put the pressure on other CVSs to follow suit.

On January 12, just six days after the announcement, Sunkus and Speed Group announced their own "Internet supermarket" concept. According to their announcement, these two firms as well as four other firms will jointly establish "e-convenience" and will deliver 4,000 items including fresh vegetables, fish and meat upon an order through the net from April.

Next day (on January 13), five major CVSs including Circle K, Sunkus & Associates, Three F, FamilyMart and MiniStop, announced the establishment of "e-Business Association." In order to compete with the largest two CVS chains, Seven-Eleven and Lawson, these five CVS chains decided to establish the common infrastructure for e-business jointly. These five CVS chains jointly have 12,000 outlets, exceeding the Seven-Eleven's 8,000 outlets and Lawson's 7,000.

Details of the business have not been decided yet. But they will establish a joint venture in April, place a new multimedia terminal in each of the 12,000 outlets by next spring (in the spring of 2001) and start selling books, travel packages, tickets, music through the terminals as well as on their web site.

"We will uniform infrastructure for e-business, however, each of the five CVSs will provide original content to its own customers," Shigeharu Tanaka, of e-business department of FamilyMart, said.

Now finding a big opportunity in CVS as a channel to reach consumers, other businesses are struggling to tie-up with them. Trading firms and banks are two such businesses.

Japanese trading firms have been entering e-business and achieving good sales in B-to-B business since their early days. However, due to their business characteristics, they have not done much business in B-to-C business. In order to launch B-to-C business, convenience stores are a vital channel for trading firms. "It is said the last one mile is important in the communications market, but last 300 meters is important in the B-to-C business," said Kenji Kobayashi, a spokesperson of Mitsubishi Corp. To get that last 300 meters, Mitsubishi and Marubeni, two major trading firms in Japan fought each other to get the stock of Lawson. In order to reduce its swelling deficit, Daiei, the parent firm of Lawson, decided to sell its stake in Lawson. After a one-month battle, Mitsubishi won a 20% share of Lawson.

Marubeni had been keeping strategic alliance with Daiei. In order to cope with Mitsubishi, Marubeni tied up with Hitachi and offered a plan to construct nationwide cable TV network linking all Daiei and Lawson outlets.

On the other hand, Mitsubishi allied itself with Sumitomo Bank and offered a plan to launch e-business fully utilizing its satellites. Hiroshi Tasaka, of the Japan Research Institute, said Daiei decided to sell the Lawson stock to Mitsubishi because Mitsubishi has satellite networks (Mitsubishi is the parent company of Super Communications Corp.), maintains a higher rate and has been providing SCM services.

It was Itochu Corp. who was first to invest in CVS in order to get that last 300 meters. In 1998 Itochu got a 30% stake in FamilyMart, the third largest CVS chain. Putting the FamilyMart into their own keiretsu, Itochu made FamilyMart as a tool for e-business. The market rated this strategy of Itochu highly -- the stock prices of Itochu shot up.

"When we took over FamilyMart, we were bantered by other trading firms," an executive of Itochu said recalling those days.

Seven-Eleven had maintained close relations with Itochu since it was founded. However, it approached Mitsui & Co., Ltd. since Itochu took over FamilyMart. Since winning an order for lunch box packages from Seven-Eleven, Mitsui has been expanding its business with Seven-Eleven. Such an effort produced a result. It was Mitsui & Co., Ltd., not Itochu, that joined the 7dream.com from the trading industry. Ryuga Wada, a spokesman of Mitsui, said that the trading firm is going to contribute for the new firm in the development of new products and services as well as in trading services, fully utilizing Mitsui's worldwide networks.

It seems that the battles among trading firms have now been settled since three major trading firms are successfully tied up with three major CVS groups.

However, their new business plan, merging trading firm's huge networks and CVS outlets as distribution and settlement infrastructure, is still unknown.

Banks are struggling to tie-up with CVS in order to put their ATMs in 35,000 CVS outlets. Under the Finan-

cial Big Bang, all of the Japanese banks are trying to reduce their costs in order to strengthen their competitiveness. As part of their effort to reduce their costs, banks are now reorganizing their branches that are one of the high cost of banks. In the process, they started to pay attention to CVS that have channels to mass retail and are open around the clock.

In November Ito-Yokado, the parent company of Seven-Eleven, launched "talks" with the Financial Surveillance Agency in order to establish a narrow bank. Just several days after this, Sony Corp. declared it would establish a net bank. Their announcements caused a stir in the Japanese financial market which has been protected by regulations.

Yoshinobu Naito, a spokesperson for Ito-Yokado, explained: "Individual consumption is moving from merchandise to services. Among the Ito-Yokado business, settlement services being provided at Seven-Eleven have been expanding. So we thought that if ATMs are at each store, then customers may come down to our outlet in order to withdraw or deposit cash. They may shop when they do this."

Ito-Yokado launched in-store branch last year (letting a bank establish a branch within Ito-Yokado store)

On the other hand, Seven-Eleven last year established a joint company which will jointly operate ATMs to be placed in each Seven-Eleven outlet with Tokyo Mitsubishi, Sakura, Asahi and Sanwa banks.

However, since Ito-Yokado learned that it can not take the leadership in the joint company system, it changed strategies. Now Ito-Yokado is going to establish its own Ito-Yokado Bank winning helping hands from several existing banks including these four city banks, Chiba Bank and the Bank of Yokohama.

Actually it was Sakura Bank that managed to tie up with CVS faster than any of the other banks. Sakura joined as the leading firm the e-net plan that was announced before Seven-Eleven's ATM plan.

The e-net is a consortium of 25 companies including these five CVSs (Circle K, Sunkus, Three F, FamilyMart and MiniStop) and 10 banks.

Under the e-net plan, all of the five member CVSs will introduce ATM machines that can perform transaction with all of the member banks. Separately, Sakura Bank tied-up with Am Pm, and under the bilateral contract, all Am Pm outlets will introduce a Sakura Bank ATM machine.

Takeo Furutachi, a spokesman of Sakura Bank said that the E-net is a common infrastructure for depositing

SKYPerfectTV:*Continued from Page 1*

Upon the merger of business, SKY-PerfectTV will have 2 million subscribers. The number is almost the same as WOWOW which has 2.5 million.

By expanding the customer base, the firm will be able to reduce the cost for winning new customers, purchase killer content at lower prices and make its business more efficiently. Market watchers said that SKYPerfectTV seems ready to become a tough competitor for BS digital broadcasters.

In the summer of 2000, a new communications satellite is scheduled for launch.

and withdrawing cash. "Customers can get benefits from this service, but we can not differentiate our services from other CVS. On the other hand, Am Pm outlets are a kind of extension of our branches. We will offer original services using the Am Pm platform." Sakura Bank is also one of the several banks that offer a helping hand for Ito-Yokado Bank which is planning to place its own ATM on all of the Seven-Eleven outlet.

Sanwa Bank tied up with Daiei OCM, a subsidiary of Daiei. It launched a service in which customers can withdraw cash from a CD machines at any Lawson outlet. Including the 870 Lawson outlets, Sanwa is providing services for a total of 2,900 ATMs/CDs at CVS outlets. But Sanwa is not participating to the e-net. Yoichi Fujita, a spokesman of Sanwa said, Sanwa does not place its own ATM at CVS outlet (because it costs a lot), rather it utilizes ATM/CDs that are owned by stores with small usage fee.

If Ito-Yokado establishes its own bank and launches a settlement business, then they will become a competitor for the existing banks. Banks seem to try to consort with the new bank rather than becoming a competitor by reaching a helping hand for Ito-Yokado. But right now, nobody knows whether the Ito-Yokado can establish its own bank due to defect of Japanese banking laws. The Japanese Bank Law that was established a decade ago fails to stipulate qualifications for a nonbank to establish a new bank. The Financial Supervisory Agency is now working hard to working out a new rule for establishing a new bank.

However, actual business plans of their e-business are still vague and there are many issues to be solved. First, even these CVSs launch their e-business, profits from these e-business seem to remain small. The 7eleven.com is targeting to get 300 billion yen in sales in fiscal 2003. However, what CVSs get from the e-business is only small margin from settlement, handling fees with merchandize, and sales on their web sites and multimedia terminals.

Some market watchers said that they can expect synergy effect from their virtual shops and real stores. It may happen, but once the multimedia terminals are placed in all of the 35,000 stores, then their services may be unified and as a results each CVS may have to struggle each other to get a piece of the same pie. In addition, technology develops very rapidly in the IT field. In order to provide advanced services to their customers, these CVSs have to spend much investment money for updating their infrastructure.

Since the new CS will be placed on the same location of BS, customers will be able to watch both CS and BS on their TV once they use a common tuner.

An advisory body to the Minister of Posts and Telecommunications recently submitted recommendations that vendors and broadcasters be allowed to develop such a common tuner so signals can be received from both CS and BS for the benefit of viewers. Some vendors such as Matsushita has already launched studies to develop such a common tuner.

Although details of these new services are going to be worked out from now on, it seems harsh competition awaits both CS and BS broadcasters.

Statistics

Records of Telecom Equipment (As of September 1999)

Production

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	308,304		-8.0
Terminal Equip.	119,199		-19.2
Wire Telecommunications Equip.	44,120		-19.4
Telephones Sets	10,802	1,268,754	0.2
Standard Type	575	52,470	-31.7
Functional Type	597	167,134	-25.5
Wireless Phone	8,383	1,036,448	7.9
Others	1,247	12,702	-8.9
Telephone Application Equip.	14,299		-5.3
Key Telephone Systems	7,001	323,242	-20.5
Small Capacity	350	31,074	-16.5
Medium/Large Capacity	6,651	292,168	-20.7
Telephone Auxiliary Equip.	221	58,727	5.2
Interphones	4,426	436,955	7.1
Others	1,185		-39.1
Telegraph & Picture Transmission Equip.	19,019		-16.7
Facsimile	16,092	347,383	-22.2
Super High-Speed Facsimile	77	1,632	-40.8
High-Speed Facsimile	15,031	344,546	-21.2
Other Facsimiles	981	1,205	-32.0
Others	2,927		35.7
Mobile Terminal Equip.	75,079	3,307,906	-24.0
Land	73,146	3,279,887	-23.1
•Automobile	150	7,850	-65.5
•Portable	61,198	2,560,461	-17.0
•Pager	327	44,562	-84.1
•MCA	170	3,101	-46.2
•Public PHS Terminal	7,584	469,581	42.3
•Others	3,717	194,332	-71.9
Maritime and Airplane	1,933	28,019	-46.4
Personal Radios (900 MHz)			-
Network-Related Equip.	185,801		1.2
Wire Network-Related Equip.	155,749		12.6
Switching Equip.	61,694		-6.8
Electronic Switches	45,920		-1.4
For Telephone Offices	35,781		8.4
For PBX	10,139		-25.4
Other Switching Equip.	15,774		-19.6
Carrier Equip.	94,055		30.3
Code Transmission Equip.	53,102	15,451	16.2
MODEMs	6,806	15,311	22.7
Others	34,147		63.0
Mobile-Related Network Equip.	26,013	19,708	-42.6
Fixed Station Communications Equip.	17,626	8,215	-51.4
Terrestrial	11,762	6,489	-58.0
Satellite	5,864	1,726	-28.5
Base Stations	8,387	11,493	-7.5
Wire Telecommunications Parts	3,304		-17.4
Relays (1,000 units)	3,127	45,885	-18.1
Other Components	177		-2.2

<For Reference>

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Broadcast Equip.	10,863	2,387	71.2
Radio Application Equip.	33,202		-4.5
Radar Equip.	6,015	5,688	-50.6
Radio Measuring Equip.	3,470	4,455	41.3
Others	23,717	17.7	-
Telemetry/Telecontrol Equip.	9,098	1,438	66.3
Others	14,619		-0.4

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 telecom equipment.

Source: Communications Industry Association of Japan

Export

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	64,114		-20.7
Wire Telecommunications Equip.	55,699		-18.1
Telephones	3,661	472	-31.8
Cordless Telephones	2,633	322	-34.8
Other Types	1,028	150	-22.5
Telephone Application Equip.	965	46	-25.1
Key Telephone Systems	199	5	-60.4
Automatic Answering Telephone Sets	125	2	-30.7
Intercoms	163	36	-27.6
Others	478	3	25.9
Telegraph and Picture Transmission Equip.	7,040	187	-33.2
Facsimile Equip.	6,795	185	-33.5
Teletypewriters	0	0	0.0
Others	245	2	0.0
Switching Equip.	2,381	34	-80.6
Carrier Equip.	5,493	37	187.8
Components	36,159		-1.4
Radio Communications Equip.	8,415	287	-34.2
Transmitter and Transmission/Receiving Equip.	7,787	175	-32.3
For Long/Medium/Short Waves	292	3	-65.7
For Ultra Short Waves	1,626	83	-20.8
For Other Waves	5,870	90	-31.7
Receivers	627	111	-51.2

<For Reference>

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Broadcasting Equip.	655	1	16.4
TV Camera	12,269	274	-43.1
Radio Application Equip.	3,246	571	-5.7
Radars	802	2	-41.3
For Navigation	1,671	28	72.4
Direction Finders	103	1	169.8
Others	1,568	27	68.5
Radio Remote Control Equip.	773	541	-30.1

Import

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Telecom Equipment	36,236		-10.9
Wire Telecommunications Equip.	31,278		-16.5
Telephones	1,848	395	14.8
Cordless Telephones	781	129	27.4
Other Types Telephone Sets	1,066	266	7.1
Telephone Application Equip.	230	38	-76.8
Automatic Answering Telephone Sets	43	4	91.7
Others	187	34	-60.7
Telegraph and Picture Transmission Equip.	1,890	129	-20.0
Facsimile	1,848	127	-15.0
Teletypewriter	0	0	0.0
Others	42	2	-77.6
Switching Equip.	7,855	13	-49.5
Carrier Equip.	7,268	211	80.8
Components	12,188	0	-5.9
For Wire Telecom Only	8,971	0	-24.7
Parts for Common Use in Wired/Radio Communication Equip.	3,217	0	209.4
Radio Communications Equip.	4,958	79	54.3
Transmitter and Transmission Receiving Equip.	2,451	51	-15.7
Transmitting Equip.	113	16	48.9
Transmitting and Receiving Equip.	2,151	27	-17.4
For Aviation	48	0	-20.0
For Mobile Telephone	129	3	-82.5
For Long/Medium/Short Waves	38	3	20.3
For Ultra Short Waves	150	4	-24.3
For Other Waves	1,974	23	9.3
Receivers	2,507	28	721.7

<For Reference>

Type	Sep. '99		Compared with Sep. '98 (%)
	¥1 Mil.	Sets	
Broadcasting Equip.	505	16	-9.8
TV Camera	1,322	1,284	-13.7
Radio Application Equip.	1,866	1	84.0
Radars	323	0	21.0
For Navigation	813	1,282	-30.1

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 September 1999)

Products	Unit	Production			Sales			Stock		
		Aug. '99	Sep. '99	Sep. '99/ Sep. '98 (%)	Aug. '99	Sep. '99	Sep. '99/ Sep. '98 (%)	Aug. '99	Sep. '99	Sep. '99/ Sep. '98 (%)
Video Tape Recorder	Sets	570,152	606,899	66.9	1,241,553	1,417,184	100.5	1,313,842	1,169,556	111.6
Video Disk Player	Sets	2,396	463	4.3	7,885	4,994	31.8	17,455	16,485	95.6
Video Camera	Sets	907,705	1,031,793	108.1	899,474	1,113,301	108.4	643,760	534,747	94.7
Car Navigation System	Sets	132,909	152,160	149.8	106,446	154,551	144.6	133,699	117,560	149.9
Digital Audio Disk Player	Sets	1,416,712	1,635,445	100.1	1,449,488	1,735,149	105.6	1,875,786	1,650,356	125.3
Active Liquid Crystal Device	1,000 units	4,714	5,212	157.9	3,900	4,361	150.2	1,031	975	106.2
Passive Liquid Crystal Device	1,000 units	38,969	42,492	119.2	33,847	38,983	116.9	20,939	20,877	89.3
Photoelectric Converter	1,000 units	982,639	1,027,497	118.6	1,093,338	1,188,525	129.6	381,593	395,711	99.8
Bipolar Semiconductor IC	Mil. yen	8,581	8,608	136.6	5,803	6,552	153.6	-	-	-
MOS Semiconductor IC (logical element)	Mil. yen	152,058	162,422	118.1	131,648	146,878	112.2	-	-	-
MOS Semiconductor IC (memory element)	Mil. yen	62,857	74,281	105.2	67,123	81,237	122.3	-	-	-
Hybrid IC	Mil. yen	22,991	25,747	112.7	21,316	23,387	114.2	-	-	-
General Purpose Computer	Mil. yen	16,569	31,086	83.6	-	-	-	-	-	-
Mid-range Computer	Mil. yen	28,931	56,661	117.3	-	-	-	-	-	-
Personal Computer	Mil. yen	941,007	947,582	100.7	-	-	-	-	-	-
Electrical measuring instrument (except for semiconductors and IC measuring instruments)	Mil. yen	12,854	16,513	87.3	-	-	-	-	-	-
Semiconductor and IC Measuring Instrument	Mil. yen	14,624	22,959	185.4	-	-	-	-	-	-
Industry-use Measurement Control Unit	Mil. yen	15,567	23,730	93.5	-	-	-	-	-	-

Source: Machinery Statistics and Research Office, MITI

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

Type of Cables	Orders Received			Shipment		
	Sep. '99	Sep. '99/ Aug. '99 (%)	Sep. '99/ Sep. '98 (%)	Sep. '99	Sep. '99/ Aug. '99 (%)	Sep. '99/ Sep. '98 (%)
Open Wire (OW)	8,040	109.7	96.4	8,349	109.0	99.0
Winding Wire	14,850	107.8	97.8	15,685	123.3	95.2
Cable for Machinery	5,258	105.6	98.4	5,313	108.0	96.6
Communications Cable	3,585	99.5	95.4	3,987	115.5	93.3
Power Cable	23,368	108.6	95.9	23,725	112.2	92.8
Covered Wire	15,246	108.3	94.3	15,578	111.9	92.9
Cable for Transportation	4,920	133.7	112.3	5,031	134.0	110.7
Total	75,267 (86,920)	109.1 (113.7)	97.1 (95.6)	77,668 (89,315)	114.9 (119.8)	95.2 (89.3)
Aluminum Power Cable	5,712 (3,661)	152.8 (163.7)	128.6 (113.1)	6,574 (4,001)	181.1 (186.4)	109.0 (91.7)
Optical Cable				1,255,718 (36,630)	134.3 (175.8)	165.8 (145.8)

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 September 1999)

Fields	Orders Received				Shipment			
	Sep. '99 (Actual)	Sep. '99/ Aug. '99 (%)	Sep. '99/ Sep. '98 (%)	Oct. '99 (Estimated)	Sep. '99 (Actual)	Sep. '99/ Aug. '99 (%)	Sep. '99/ Sep. '98 (%)	Oct. '99 (Estimated)
Telecommunications	2,280	94.1	89.4	2,300	2,591	110.8	89.9	2,400
Electric Power	7,170 (4,996)	82.2 (170.0)	77.6 (154.0)	7,400 (4,500)	8,741 (5,666)	126.5 (208.7)	81.8 (116.5)	8,400 (2,500)
Electric Machinery	18,613 (319)	109.3 (102.2)	95.6 (79.9)	18,900	19,550 (352)	121.6 (123.1)	94.3 (134.4)	18,700
Automobile	6,497	126.4	105.5	6,000	6,638	131.0	106.5	6,000
Construction/Cable Shops	29,738 (50)	108.2 (142.9)	98.1 (131.6)	32,000	30,232 (49)	107.8 (125.6)	99.7 (89.1)	30,300
Others	6,391 (100)	122.4 (102.0)	96.2 (38.9)	5,700 (500)	6,337 (126)	118.8 (168.0)	98.2 (49.4)	6,000 (500)
Domestic Demand Total	70,689 (5,465)	107.1 (161.5)	95.1 (138.7)	72,300 (5,000)	74,089 (6,193)	116.2 (198.8)	95.8 (103.9)	71,800 (3,000)
Export	4,578 (247)	155.5 (69.6)	145.0 (49.2)	4,000 (400)	3,579 (381)	94.0 (73.8)	84.5 (64.1)	3,300 (400)
Total	75,267 (5,712)	109.1 (152.8)	97.1 (128.6)	76,300 (5,400)	77,668 (6,574)	114.9 (181.1)	95.2 (109.0)	75,100 (3,400)
Core Cable Sales	32,929 (128)	107.5 (130.6)	99.6 (110.3)	30,700 (200)	33,125 (64)	124.6 (61.5)	103.1 (50.4)	31,200 (200)