

11-15

1999

EL ELECTRONICS

エレクトロニクス

音楽も,ゲームも,電子商取引も

ケータイが のみ込む

燃料電池車は燃料選定が急務,ハイブリッド車は普及段階へ

DRAM代替をねらう新メモリ「MRAM」

特集「0603」部品の利用には実装技術の改善が必須

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Chapter 2
Application

Music is from ringing tones, game is from characters

i-Mode has acquired 200 million subscriptions in only eight months from the start of services.

From this trend, directionality of next services has started to be recognized.

That would be delivery of contents, such as "music" or "games".

However, such services cannot be realized at a single bound.

This is because both a communication rate and functions of mobile phones are not yet sufficient.

Building on deliveries of ringing tones and characters that have already been supported among people, music delivery and game delivery to be a goal for the time being will be realized.

Mobile phone services will become faster. If so, it becomes possible to deliver not only text information but also high-capacity data, such as sounds, images or video pictures, ...

This is a scenario that has been told countless times up to now. Now, this scenario has

become factual suddenly. This is because content providers relating to "music" (Note 1) and "game" have all started becoming serious about the delivery using mobile phones.

In the music delivery experiment that will be started in April 2000 by NTT Docomo (NTT Mobile Communications.

Network, Inc.), nineteen major record

companies have joined a review meeting (Note 2).

Manufacturers of portable video game players, such as BANDAI or NINTENDO, have also started realization of communication games using mobile phones near spring 2000.

Delivery of sounds and images becoming popular

As mentioned above, the reason why movement of content providers has become intense is because they have ensured,

Note 1) Herein, it is defined as music with lyrics recorded in compact discs (CD), etc.

"Delivery using mobile phone will be good business". In actuality, delivery business of "music" and "images" using the existing personal digital cellular (PDC) method has become popular even in the communication environment at a low rate, 9.6 kbits/sec.

i-Mode by NTT Docomo acquired 200 million users in eight months since starting the services in February 1999.

Among these, users of a delivery service of character images: "Itsudemo Charappa (Character anytime)!" provided by BANDAI amounting to 400,000 (Fig. 1)

An input code delivery service of ringing tones provided by Giga Networks is also rapidly supported (Note 2). Regardless of complication of input procedure, subscribers have exceeded 100,000 only in one month since starting paid services.

J-PHONE Group, DD/II Group and Astel Group, etc. are providing ringing tone delivery services only with telecommunication fees.

To be basis of e-commerce

Mr. Takeo Takasu, President of BANDAI, analyzes such strenuous efforts "the same as mobile-phone charms. Differentiation of own mobile

Note 2) The record companies that participate in Mobile Media Distribution (MMD) Service Review Meeting are Avex, Polygram, Universal Music, SONY Music Entertainment, Toys Factory, Toshiba EMI, Tokuma Japan Communications, Barrier Free, Hands Entertainment, BMG Fun House, PC Entertainment, For Life Records, PRYAD RECORDS INC., Polyester, MIDI, Universal Music, Lastrum Corporation, Warner Music J.

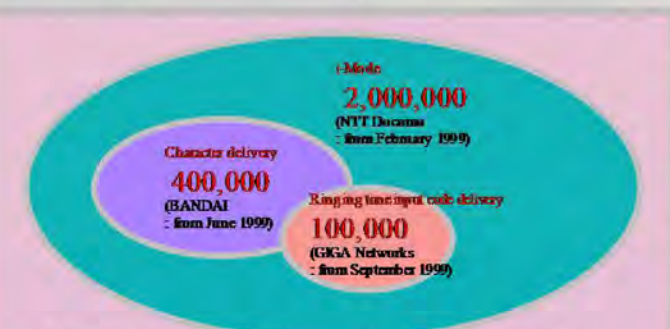


Fig. 1: We can see services that will be accepted by many users, as well. These are "ringing tone delivery" and "character delivery". GIGA Networks has started services to deliver input codes for ringing tones from September 1999, and acquired 100,000 users in only one month. Users need to enter the downloaded input code by hand, but still many subscriptions were acquired. Character delivery services started from June 1999 by BANDAI reached 400,000 subscriptions at the end of October. This proves that one out of approximately five i-Mode subscribers are utilizing the services. The number of subscriptions is an approximate figure in mid October 1999, respectively. (Graph: this magazine)

earning a profit, but these are effective as marketing tools, as well. "If mobile phones are used for trial listening to music, users' reaction can be directly obtained" (Mr. Hiroshi Inagaki, Chairman of Warner Music Japan) (Table 1).

However, current mobile-phone services are not equipped with a communication environment and hardware so as to deliver "music" and "games". Consequently, the content providers target at expansion to the delivery of "music" and "games", building on "ringing tones" and "characters". When this delivery is accomplished, the platform will be a strong pathway of e-commerce (EC) for individuals. It is just making the first move for now.

Starting from ringing tones for music delivery

"Needless to say, the final target is music delivery" (Mr. Yoshitaka Touge, System Advisor of Giga Networks MM Business Promotion Office). However, it is not realistic to deliver music data in a form of MPEG1 Audio layer III (MP3) or Adaptive Transform Acoustic Coding 3 (ATRAC3) out of nowhere. This is because data volume is too great, at 3 Mbytes to 5Mbytes, and it takes almost one hour to download per music with the current line^{Note 4}.

Consequently, the music delivery will start from ringing tones first. Only a minor change of hardware in mobile phones is required for this, and rights

handling on the occasion of delivery is comparatively simple (Fig. 3). Then, improvement of sound quality will gradually become closer to music.

What to start at first in order to improve the sound quality of the ringing tones is to reproduce chords. Astel Group has already launched a PHS terminal that can simultaneously reproduce three sounds, and has started delivery of ringing tones. Even among mobile phones, many of models to be launched at the end of 1999 are equipped with a function to simultaneously reproduce three to four sounds. It was possible to manually enter a ringing tone using a so-called "ringing tone book" with previous single-sound reproduction function, but that is not going to work because input data volume is increased with chords. In other words, it becomes necessary to deliver ringing tone data.

NTT Docomo will start a ringing tone delivery service with chords using i-Mode along with the launch of a chord reproduction model in December 1999. Other mobile-phone providers seem to start similar services.

Re-use of Karaoke data

Such chords are realized by reproducing "simple MIDI" data.

Note 3) The service cannot be reproduced immediately after downloading, but only an input code is delivered (picture). A user has to transcribe the code on the paper once, and then, has to enter it into the mobile phone again (picture: Video Picture Dept. of Head Office).

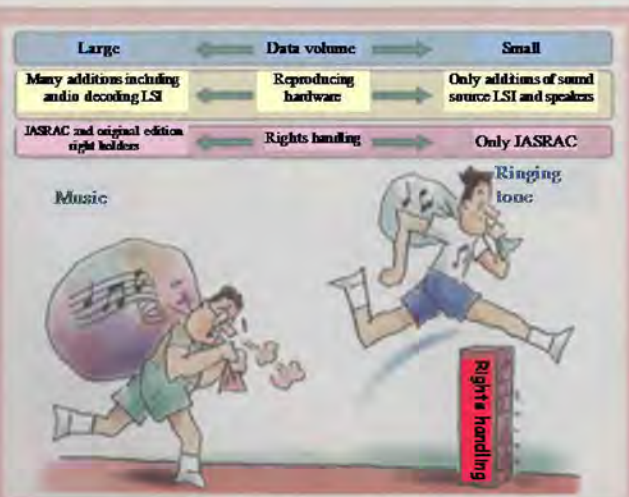


Fig. 3: Ringing tones have mass appeal
The first move for delivery of music using mobile phones will start from "ringing tones". Not only the data volume per song is small, but it requires less change in hardware. In addition, simple rights handling is also a great reason. In the case of the ringing tones, rights handling is merely to pay copyright fees to Japanese Society for Rights of Authors, Composers and Publishers (JASRAC). In the meantime, if sound sources recorded in CD are tried to be utilized, it becomes necessary to negotiate not only with JASRAC but with original edition right holders, such as a record company or a music publisher. (Illustration: this magazine, illustrated by Gaichi Muranatsu)

The simple MIDI data is a standard where Musical Instrument Digital Interface (MIDI) is simplified. Mobile phones having a chord reproduction function have a

Fig. 4: Goal is music delivery
Success of ringing tones produces demand of high sound quality, and hardware has a chord reproduction function. In response to this, the delivery of ringing tones will be developed from services of current single tones to chords. Repeating this, realization of music delivery will be targeted in 2001 or later (drawing: this magazine).

We have matter "Package will"



Mr. Hiroshi Inagaki
Chairman
Warner Music Japan
(picture: this magazine)

The movie industry expands its market by variously changing sales formats of one production through the time not only for theaters but also for cable TV, broadcasting or rental videos.

Even for delivery of music before discussing "package will longer be in demand", a

business operators. XING and Daiichikoshu seem to get ready for realization of delivery services of ringing tones. The reason why the telecommunications karaoke business operators spend efforts is because data prepared for karaoke can be re-used.

MIDI data utilized for the current telecommunications karaoke is around 100 Kbytes. In the meantime, data volume of contents delivered with i-Mode is up to 5 Kbytes. Consequently, content providers convert MIDI data into simple MIDI to reduce the data volume, and deliver it.

High barrier of music delivery

An experiment about "music" delivery, which is a final goal, will also be started. NTT Docomo will implement a music delivery experiment utilizing data communication at 64 kbits/sec by PHS from April 2000¹⁾.

However, it takes seven to eight minutes to download one title in ATRAC3, which is one of the data formats assumed as delivery contents. It is commented, "The main target is services with IMT-2000" (Mr. Kushiaki Naoi, Manager in charge of Network Utilization Planning, Mobile

Computing Business Dept., NTT Mobile Communications Network, Inc.), but one to two minutes of downloading time will be required (Fig. 5).

If the upper limit data volume of i-Mode is 5 Kbytes as a basis, a rough indication of download time will "10 seconds or less". However, NTT Docomo believes, "users may accept even if it takes 1 to 2 minutes to download music contents lasting 3 to 4 minutes" (Mr. Naoi, NTT Docomo).

In the meantime, record companies seem not to immediately consider delivery of entire music (see "there is a matter to consider before "elimination of package" in p. 119). "Although mobile phones will be a dominant platform, it will further away to be business" (SONY Music Entertainment). "We are going to provide trial listing contents for about 30 seconds for free at first" (Mr. Yasuharu Shoda, Project General Manager of New Technology Study Committee, Warner Music Japan).

Realization by adding some creative thinking

In order to deliver contents in MP3 or ATRAC3 for "10 seconds or less", there is only way to wait for services at 2 Mbits/sec

of communication rate, which be realized sometime in the future with IMT-2000. In order to realize the music delivery with IMT-200 at 384 kbits/sec, it is necessary not to simply deliver contents in MP3, etc., to add some creative thinking.

There are some means for this. One is to reduce capacity of contents. YAMAHA and Face who individually advocate the simple MIDI standard insist that the data volume can be 500 Kbytes or less by combining sound data in MP3 with BGM data in the simple MIDI. Sound data can be reduced during a slot without singing voice^{Note 6)}.

"The similar technique already been adopted for content of telecommunications karaoke. BGM is MIDI, even if a data encoding rate of singing voice be synthesized there is decrease to suppress the sound quality some degree, the sound would be heard clearly" (Mr. Masato Nakanishi, Senior Managing Director of Face).

Other than this, there is another way of thinking when downloading of music should be relied upon using mobile-phones. This is a method to distribute a large capacity of encoded contents to users in advance by using another line

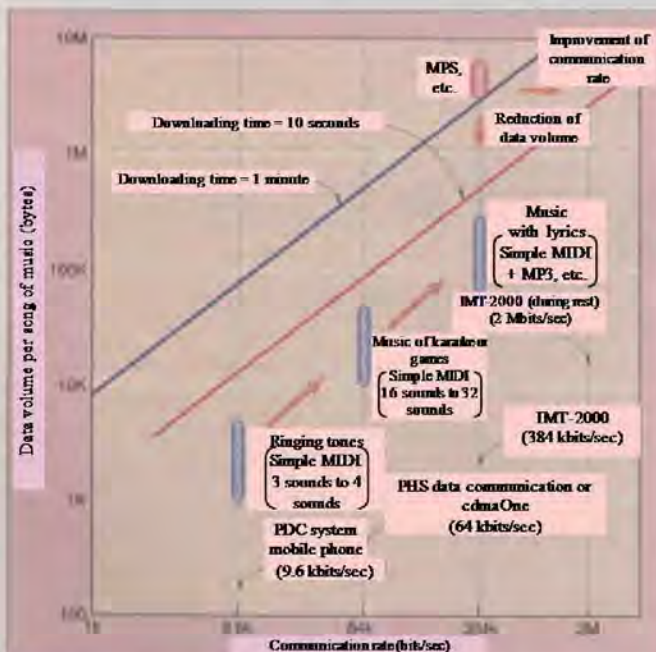


Fig. 5: Music delivery with IMT-2000 require some creative thinking for realization. In association with improvement of a communication rate, capacity of deliverable music contents is also increased. With the services in current i-Mode, 5 Kbytes per content is an upper limit. If realization of downloading time at 10 seconds or less based upon this is a rough indication of delivery contents, even if IMT-2000 services at 384 kbits/sec are started, this cannot be accomplished with delivery of music contents that are often utilized over the Internet, such as MP3. Consequently, telecommunications karaoke business operators are planning to realize the contents that can be delivered in 10 seconds or less by combining the simple MIDI format with MP3, etc. (Graph: this magazine).

Note 4) In the case of using a packet communication service at 9.6 kbits/sec with PDC method.

Note 5) There is also an idea. "There is a compression method for being specialized in frequency bands of musical instruments and voice in TwinVW and ATRAC3. If this is utilized, the compression rate can be improved" (Mr. Takahiro Tanaka, Deputy Engineer of Marketing Office, Semiconductor Division, YAMAHA).

Note 6) For example, NINTENDO and KONAMI established a joint venture "NINTENDO KONA" for developing game software by using mobile phones in mid October 1999. This company will develop software that runs on game console connected to a mobile phone. The goal is to "come up with innovations which is a game combined with telecommunications" (Mr. Hiroshi Yamamoto, President of NINTENDO).

Next is empathic character

In association with the evolution of mobile phones, delivery of characters that is attracting popularity will also evolve.

First, it will be colorized. NTT Docomo is going to launch i-Mode terminals where a color liquid crystal panel is mounted by the end of 1999^{Note 7)}. On the new terminals, it becomes possible to display graphics interchange format (GIF)¹ files with 256 colors.

In association with the appearance of the new terminals,

characters to be delivered will be colorized. Most of characters originally have color, and they were black-and-white because of no choice. Colorization is a natural transition (see "Attraction of characters will be increased along with evolution of mobile phones" mentioned below).

Following the mobile phones where a color liquid crystal panel is mounted, NTT Docomo will launch a mobile phone where a Java function is mounted by the end of 2000. A user can utilize desired software, such as games, by downloading

via a mobile-phone line.

NTT Docomo will disclose Java application programming interface (API)² for application developers by targeting January to March 2000. JavaAPI for mobile phones is for collaboration between Java application (Applet) and hardware of a mobile phone. Functions, such as playing sounds of a mobile phone in certain timing, flashing a screen, or sending data to a network, can be included.

One of advantages in a Java-enabled device for content providers is to make it easy to

develop interactive applications. BANDAI that has produced results with the character deliveries, "It becomes possible to deliver "empathic" characters because the Java-enabled devices have appeared" (Mr. Takeshi Shimizu, Section Manager of Development & Purchase, N Property Development Division, Development Headquarters). They believe that characters move in the mobile phone and communicate with users will become popular.

The supporting fact is that software with the similar content has already run on a personal computer or a game console. For example, as a typical example, e-mail software for a personal computer, there is "POST PE" (Fig. 7). A virtual electronic character kept in a personal computer delivers e-mails.

As an example of software for a game console, there is "SEAMAN". SEAMAN will develop in the game console environment by feeding the virtual animal referred to as SEAMAN changing water [of the tank], talking to SEAMAN.

It can be easily imagined that such similar software will appear for a mobile phone. I mobile phone that is originally equipped with a communication

Attraction of characters will be increased along with evolution of mobile phones



Mr. Takeo Takasu
(picture: this magazine)
President
BANDAI

The character delivery service: "Itsudemo Charappa (Characters anytime)" started from June 1999 via i-Mode by NTT Docomo is in good demand. The number of subscribers has exceeded 400,000 only in less than five months from the start of the services.

Some reasons can be considered, but the point to realize a different mobile phone from others' with payment of 100 yen a month seems to be well accepted. This is in common with the ringing tones.

In the current character delivery, there are many restrictions, such as delivery of only black-and-white still pictures. Hereafter, if a color liquid crystal panel is mounted in a mobile phone, characters can be colorized, and if there is a Java function, it becomes easier to utilize various ideas, such as becoming movable by a user's intention.

In this way, a boundary line between a game console and a mobile phone is fading away. How the grouping should be hereafter is not clearly discerned yet in the present moment. Consequently, we are going to deal with both situations.

We possess many characters both from cartoons. Our sales of housewares with such characters occupy approximately one-half of the total, and we are considering that it can be increased through concepts.

The character delivery via i-Mode is also attractive as marketing tools. A popular fortune per character can be directly obtained. For example, information, such as "Popularity of 326 (Mitsuru) has been rising sharply since the beginning of October. In addition, the popularity in Kyushu is particularly high," can be obtained.

As terminals connected to the Internet, mobile phones were preceded by personal computers. As the advantage of the mobile phones compared to the personal computers, since a user always carries a mobile phone with him/her, push-type contents can be easily delivered. We would like to consider usage by utilizing a multi-destination delivery.

What we expect from mobile-phone business operators is to protect copyrights. Service provision in "closed world" that cannot be accessed by other than subscribers can be easily realized. It can be stated that this point is also one of the attractions about mobile phones viewing from content business. (Interview)

Note 1) NTT Docomo exhibited "Digital Mover 502HYPER" where a color liquid crystal panel is mounted for reference. "TELECOM99" held in mid October. At the exhibition site, "F502i" manufactured by FUJITSU and "D502i" manufactured by Mitsubishi Electric were exhibited. They are going to be launched by the end of 1999.

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