Mobile Multimedia Broadcasting Service for Smartphones | Mobacas | NOTTV

Technology Reports

New Service Merging Communications and Broadcasting—NOTTV—

Service Overview of NOTTV Mobile Multimedia Broadcasting for Smartphones

In April 2012, NTT DOCOMO launched NOTTV[TM*1]*, a mobile multimedia broadcasting service for smartphones, as part of its efforts to achieve a "convergence of broadcasting and communications" and become an "integrated service company with mobile services at its core."*
NOTTV incorporates both simultaneous delivery, a feature of broadcasting, and bidirectionality and personal delivery, features of communications, to achieve a "bidirectional next-generation service" heretofore not seen in TV and other forms of broadcasting.

Product Department

Yohei Ikai[†1]
Misaki Hara[†2]
Wataru Funato
Yuma Kuribayashi[†3]

1. Introduction

Not content with being only a mobile communications operator, NTT DOCOMO is working to create new value and new markets by exploring a variety of business areas having a high synergetic effect with mobile, such as credit-related businesses typified by its iD/DCMX service. To this end, NTT DOCOMO has also been pursuing the development of a broadcasting business.

With the aim of acquiring the Very High Frequency (VHF)[*2] High Band (V-High) (207.5-222 MHz) following

the termination of analog terrestrial broadcasting in Japan in July 2011, NTT DOCOMO established a subsidiary company named Multimedia Broadcasting Inc. (now "mmbi, Inc.") in January 2009. Multimedia Broadcasting Inc. proposed a service business using the Integrated Services Digital Broadcasting-Terrestrial (ISDB-T)[*3] for mobile multimedia (ISDB-Tmm) system, which, as an extension of ISDB-T, a system used for existing digital terrestrial television broadcasting and the One Seg broadcasting service, has access to many technical assets.

Around the same time, the Medi-

aFLO Broadcast Planning Inc. established by a group of companies centered around KDDI proposed a service business using the MediaFLO[TM*4] multimedia-broadcasting standard for mobile terminals developed by Qualcomm. This standard is already being used in the United States to provide services.

In the end, Japan's Ministry of Internal Affairs and Communications (MIC) judged that the business plans of Multimedia Broadcasting Inc. had higher applicability to the comparative judging criteria set forth in the Ministry's business-establishment guidelines and therefore granted the company the sole

†1 Currently Frontier Service Department
†2 Currently Communication Device Development Department
†3 Currently Human Resources Management Department

*1 **NOTTV**[TM]: NOTTV and the NOTTV logo are trademarks or registered trademarks of mmbi, Inc.
*2 **VHF**: The frequency band from 30 to 300 MHz, also called the very high frequency waves.

business license for mobile multimedia broadcasting on September 9, 2010.

NTT DOCOMO then undertook preparations for the launching of the business including the development of a common software platform to promote the adoption and spread of receivers compatible with the new broadcasting service.

In this article, we describe the key features of NOTTV and outline Mobacas-compatible terminals.

2. Mobacas and NOTTV

"Mobacas" is the generic name given to V-High multimedia broadcasting using the ISDB-Tmm system. This name contrasts with "One Seg," the name of the existing mobile multimedia broadcasting system.

As shown in **Figure 1**, the Mobacas system is divided into a Broadcasting Network Operator and Content Broadcaster.

The Broadcasting Network Operator is Japan Mobilecasting, Inc., which has the role of constructing broadcasting facilities, designing coverage areas and transmitting signals. A Content Broadcaster, meanwhile, has the role of producing, compiling and providing programs. More than one broadcaster of this type may participate in Mobacas, but at present, only mmbi, Inc. is doing so. The name of the mobile broadcasting service that mmbi is operating is "NOTTV."

3. NOTTV Features

The idea behind NOTTV is to provide an individual-oriented broadcasting service that can be enjoyed at anytime from anywhere by exploiting the unique characteristics of mobile communications.

NOTTV provides programs and content in two broadcasting formats: real-time broadcasting in which all users view the same program at the same time in a manner similar to One Seg, and file-based broadcasting in which a user receives content by broadcast signals and saves it for viewing or use at a more convenient time. These formats together with bidirectional-communication capabilities makes NOTTV a mobile multimedia broadcasting service oriented to the individ-

ual.

3.1 Provision of Programs and Content Matching User Preferences

An issue that arises in achieving individual-oriented broadcasting as targeted by NOTTV is how to go about providing services suited to the individual given that people differ in age, gender, business field, hobbies, likes and dislikes, etc.

One solution to this issue is to use a recommendation function to facilitate the delivery of programs and content that match individual preferences.

It has already become possible to provide file-based content oriented to an individual user using age, gender and preference information preregistered by the user and content-purchas-
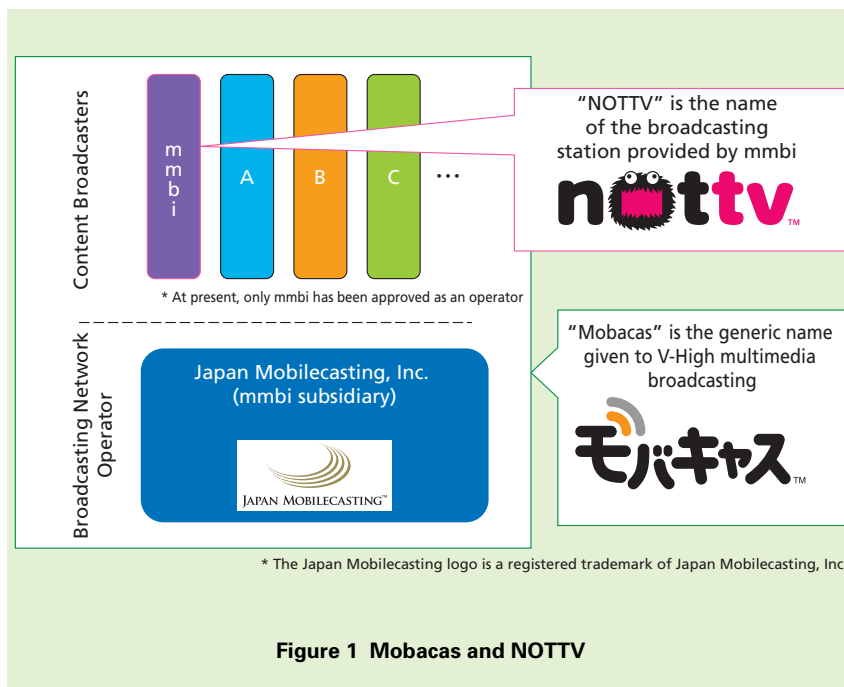

Figure 1 Mobacas and NOTTV

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ing and viewing/usage history. In this way, a user can automatically receive content matching personal preferences instead of having to select specific items one by one from a list of content and reserving those items for delivery. A more detailed description of the technical features of this recommendation function can be found in a separate article[1].

3.2 Achieving User-participation-type Programs

Content can, of course, be provided through broadcasting, but combining broadcasting with communications will make it possible to provide bidirectional-broadcasting services heretofore unseen.

We can cite linking with SNSs and interactive linking as examples of functions that combine broadcasting and communications. These functions make it possible to achieve a more evolved form of user-participation-type programs.

SNS linking will allow viewers of a real-time broadcast such as a sports event or live program to simultaneously post and review messages on social media such as Twitter[*5] or Facebook[*6] so that they can enjoy that broadcast together and share impressions. A live program, in particular, opens up interesting possibilities in this regard, such as a scenario in which the opinions of tweeting viewers are reflected in real time within the program thereby giving those viewers a sense of participation and presence.

Interactive linking, meanwhile, can enable viewers of real-time broadcasts to simultaneously participate in quizzes, auctions, questionnaires, voting, etc. This can be achieved by using the screen-superposition function of Broadcast Markup Language[*7] (BML) data broadcasting so that quizzes or other interactive activities can be overlaid across the entire screen instead of having to partition the screen into different areas. This makes it easy for viewers to participate in a program by simple touch operations that make them feel as if they are actually touching the images displayed on their screen (**Figure 2**).

A more detailed description of the technical features of interactive linking can be found in a separate article[2].

4. Hardware Features of Mobacas Terminals

NTT DOCOMO plans to support the ISDB-Tmm system in more of its terminals (hereinafter referred to as "Mobacas terminals") so that users will be able to view broadcasting services not only from NOTTV but also from other Content Broadcasters in the future. The hardware configuration of Mobacas terminals is shown in **Figure 3**. A Mobacas terminal includes a Mobacas antenna and tuner. A more detailed description of the technical features of the Mobacas antenna can be found in a separate article[3].

5. Compatible Models

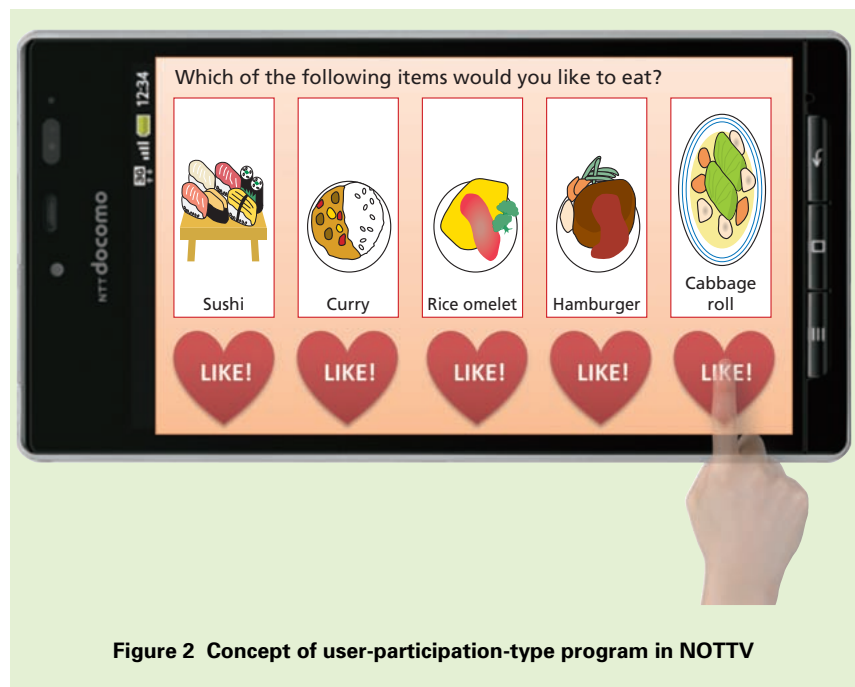With the aim of meeting its target of more than one million subscriptions

Figure 2 Concept of user-participation-type program in NOTTV

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*5 **Twitter**: A registered trademark of Twitter Inc. in the United States and other countries.
*6 **Facebook**: A trademark or registered trademark of Facebook, Inc.
*7 **BML**: XML-based markup language for data broadcast.

to NOTTV in its first fiscal year of operation, NTT DOCOMO looks to put more than three million Mobacas-compatible terminals on the market. The service was launched with two models: AQUOS PHONE[*8] SH-06D released on March 23, 2012 and MEDIAS[®*9] TAB N-06D released on March 30, 2012. NTT DOCOMO then announced that it would add five more models in the first half of fiscal 2012 to provide more variation in size, resolution, etc. It also plans to support more than ten Mobacas-compatible terminals in the second half of fiscal 2012 starting with three autumn models (**Figure 4**).

In this way, more than half of NTT DOCOMO models including those of overseas makers will be Mobacas-compatible terminals within one year of launching the NOTTV service. Fig. 4 also shows similar data for the One Seg service, which also requires special hardware and software. In this case, only one model was released in the spring of 2006 with a total of only four models released within one year of service launch. The main reason for this difference is that the software required for Mobacas-terminal development was uniformly developed by NTT DOCOMO as a common software platform on top of Android[TM*10] OS for deployment on smartphones.

6. Conclusion

Looking forward, NTT DOCOMO plans to equip even more handset mod-

els with the Mobacas function as a standard terminal function. It also plans to support new functions such as the recording of real-time broadcasts and support for a wider range of e-book for-

mats.

REFERENCES
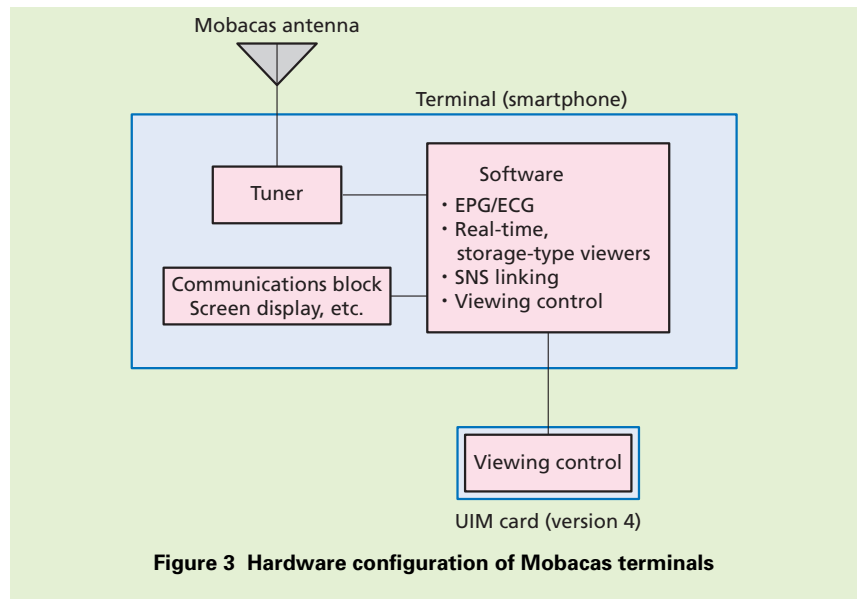[1] K. Igarashi et al.: "New Service Merging Communications and Broadcasting—
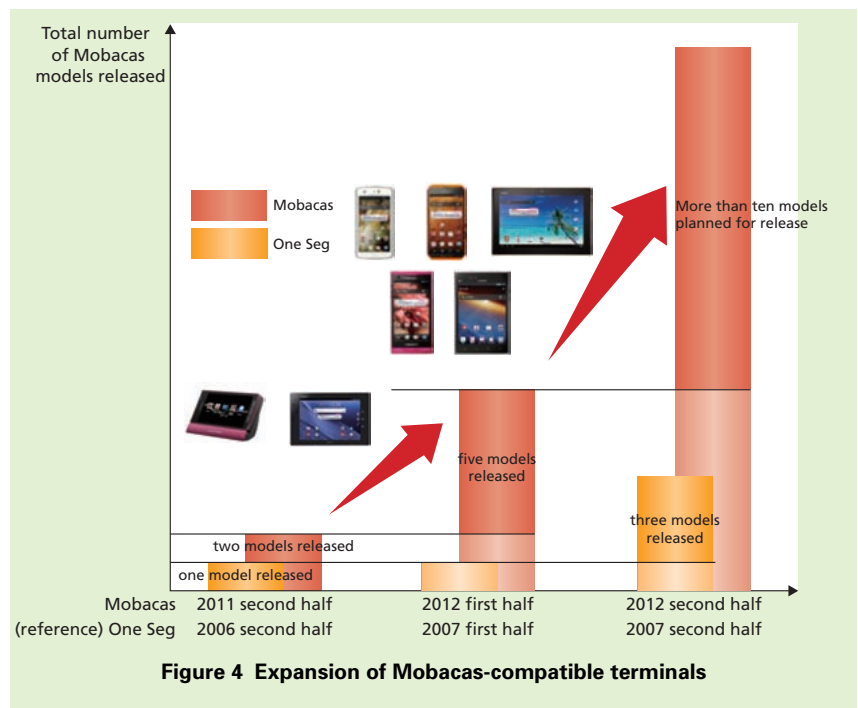

Figure 3 Hardware configuration of Mobacas terminals

Figure 4 Expansion of Mobacas-compatible terminals

NOTTV—/Recommendation Technology for Promoting Use of NOTTV," NTT DOCOMO Technical Journal, Vol. 14, No. 3, pp. 70-75, Jan. 2012.

[2] M. Uchida et al.: "New Service Merging Communications and Broadcasting—NOTTV—/Mobile Terminal Technology Supporting Mobacas Service—Mobacas Software Platform for Android—," NTT DOCOMO Technical Journal, Vol. 14, No. 3, pp. 56-62, Jan. 2012.

[3] M. Sasaki et al.: "New Service Merging Communications and Broadcasting—NOTTV—/Mobile Terminal Technology Supporting Mobacas Service—Radio Hardware Technology—," NTT DOCOMO Technical Journal, Vol. 14 No. 3, pp. 63-69, Jan. 2012.