Challenge

"teleda" Overview

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Various daily broadcasts promote a wide variety of human communications. However, individualized or polarized viewing by viewers is concerned because of the recent appearance of convenient viewing styles made possible by video on demand (VOD) and portable terminals that can make viewers watch their favorite programs any time they like. This prompted the NHK Science & Technology Research Laboratories and the NHK Broadcasting Culture Research Institute to jointly develop "teleda." Teleda is a service that aims to build relationships between broadcasters and viewers (vertical) and among viewers (horizontal) and foster a new type of viewing behavior (Figure 1). The basic service concept is as follows:
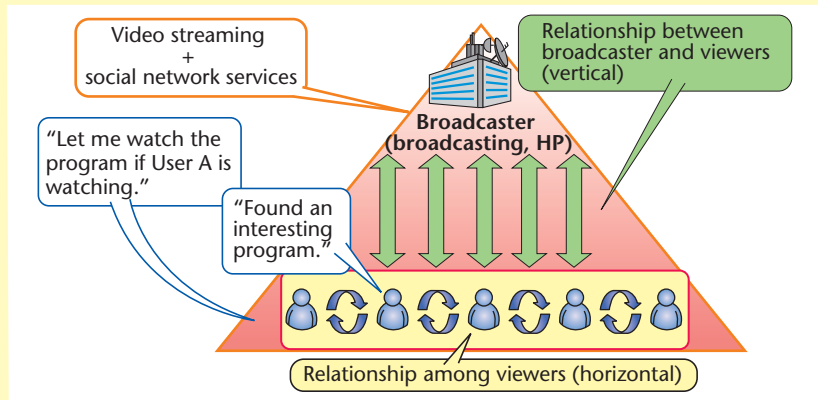

Figure 1: teleda service model

Figure 2: Web site screen sample

(1) Introductions to Programs Based on Information Provided by Other Users

Users (viewers) can read other users' opinions and evaluations, and find information about other relevant programs based on other users' interests. This enables them to find programs that they would not have been exposed to through their own TV viewing habits.

(2) A Place to Communicate Based on Viewing Programs

Users are introduced to a wide array of programs, and this gives them the opportunity to become acquainted with diverse groups of people from different generations.

To realize the basic service concept, a system is being developed to combine the functions of a social network service (SNS) and VOD. During the last fiscal year, a website with the following basic functions was constructed, and it was used in a verification experiment involving approximately 1,000 users (Figure 2).

- Video Viewing Function

This is a video viewing service that is equivalent to NHK's VOD service (NHK On Demand), which makes it possible to view just-missed programs and previously broadcast programs with copyright clearance. Programs can be searched for by genre and keyword or by consulting a program guide, and the results returned are lists of snapshot images representing program characteristics.

- Social Service Function

This function enables users who watched a program to post their opinions and reviews, create a community related to a program's theme, give a 5-scale satisfaction evaluation, make it a favorite, or follow other users who wrote reviews that the individual liked. Such information can be used for social graphing of programs and individuals, as well as for making people-to-people connections and recommendations.

- Recommendation Function

This is a function that recommends programs and introduces communities and other users. Seven recommendation functions were incorporated in the system, including those for a "highly reviewed program" and a "program that became a topic on an external SNS" based on a viewing log and social service functions. An interested user can watch the recommended program or participate in the community from the recommendation link.

Series: Social TV System "teleda"

"teleda" Platform for Efficient Utilization of Program Resources

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The teleda platform consists of a resource manager that associates the resources generated by a user's behavior (program reviews, viewing logs, etc.) with NHK program-related resources (program, metadata, etc.) and a service provider function that offers services based on these resources (program distribution function, review posting/browse function, etc.) (Figure 1).

The platform provides an Application Programming Interface (API) for adding/updating and accessing to individual resource. An API is a common interface used to give easy access to platform functions from another function or external application. The following expandability/conveniences are realized by the teleda system.

- Customizable data presentation methods depending on a terminal (PC, Smartphone, Hybridcast receiver, etc.) and application.
- Linkage with external SNS sites via API makes its services available to more people.
- Easy development of new services based on user viewing/behavior logs and function expansion.

Figure 2 shows the conceptual image of a program recommendation API. A user terminal transmits a request describing user-identifying information and the type of programs for which recommendations are desired (Figure 2①). A recommended program list is then sent from a server (Figure 2②). The list is used to present a recommended program tailored to the user's terminal (Figure 2③). Presently, the system is equipped with seven types of recommendation functions, including "highly-rated program," with the capability of easily adding new recommendation functions. Such requests and recommended program lists are provided in a versatile format commonly used on the web.

Our future work will involve creating data associations between NHK's program resources and a user's viewing behaviors, as well as broader development, through APIs, to construct an environment to provide even easier access to NHK services. To accomplish this, advances will be made on practical API designs and the construction of an expandable platform to provide new services quickly.
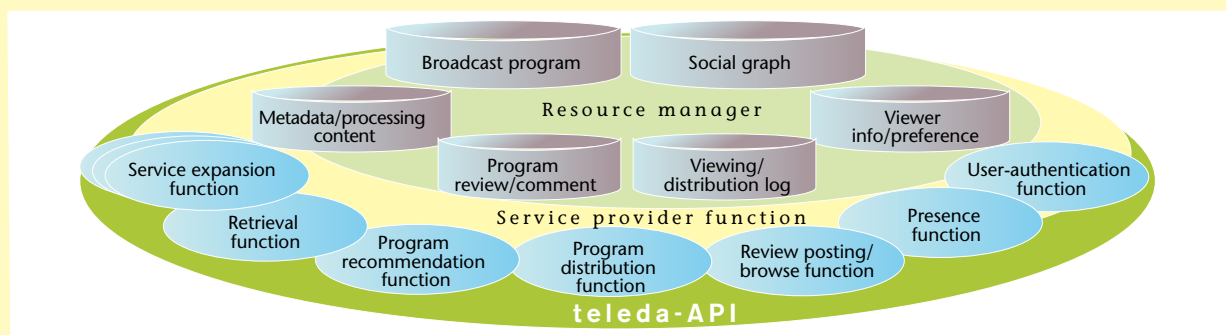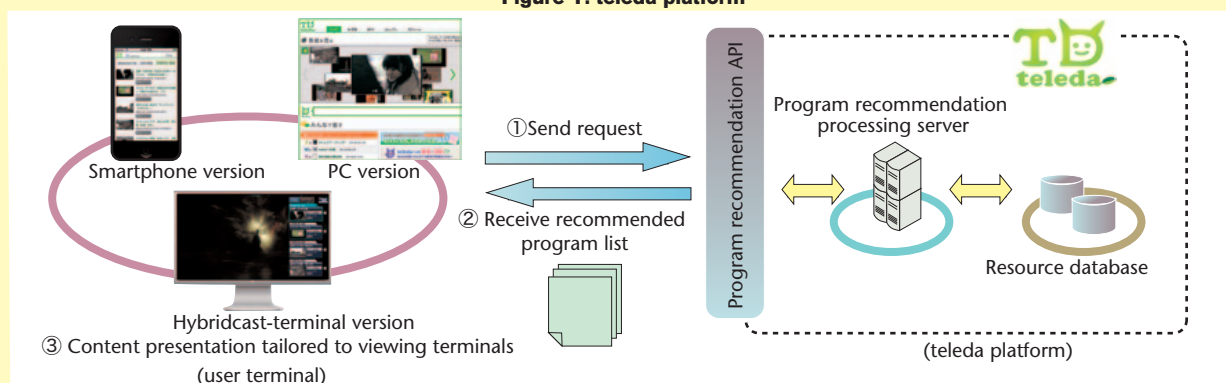

Figure 1: teleda platform

Figure 2: Program recommendation API operation conceptual image

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Experimental Demonstration of "teleda"

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STRL, the NHK Broadcasting Culture Research Institute, and NHK Net Club jointly conducted a demonstration experiment with the aim of verifying the functions and effectiveness of the teleda service. A total of 1,032 NHK Net Club members who had freely used the teleda service from their homes for a period of three months participated. Their viewing and posting trends were analyzed based on a system log. Approximately 2,500 titles were provided during the experiment, for which a total of 19,000 views were recorded.

First, the participants were divided into four groups by their usage style (Figure 1). In comparison with other groups, Group C viewed more documentary/culture and news/reporting programs, and Group A watched more entertainment programs such as dramas and variety shows (Figure 2). Similar trends were also observed in their posting activities. It was found that documentary and news programs prompted more active user communication.

Figure 3 shows the percentages for each group of the total viewing counts for the programs in units of 100 programs in the ranking on teleda. Group C had an extremely high viewing count compared with the other groups, with a notable feature that Group C's total viewing percentages climbs as programs drop in the ranking. Beyond the viewing function, Group C also had higher usage frequencies for other functions, including "follow others" and "become a fan of the program." Participants
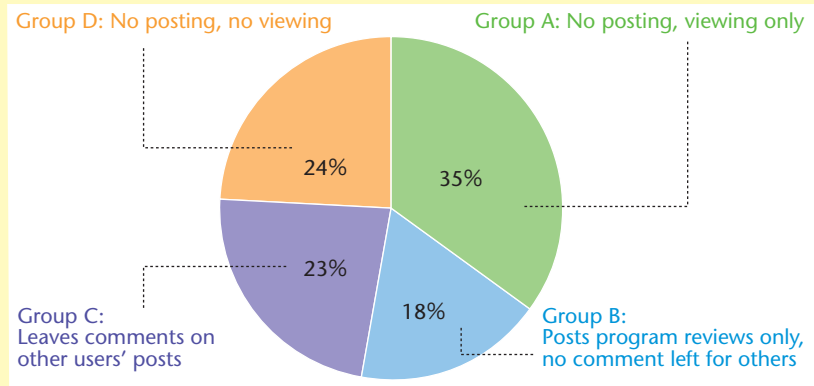
in Group C who valued communication with others contributed to the overall vitalization of the teleda service. Together with the fact that they were more likely to watch programs with fewer viewers than the other groups, it is thought that this increased and active participation by commu-

nication-oriented users will lead to an expansion of viewed genres and viewing numbers as a whole.

We will design an interface to encourage more active inter-user communication and examine linking the service with an external SNS.

Figure 1: Grouping of the experiment's participants
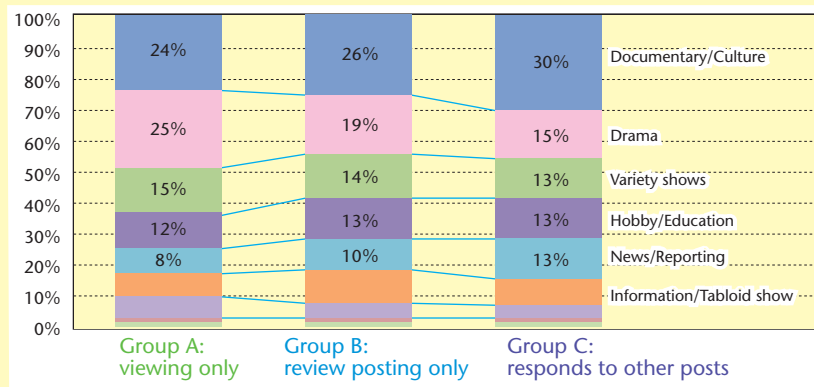
Figure 2: Viewing genre trend by group
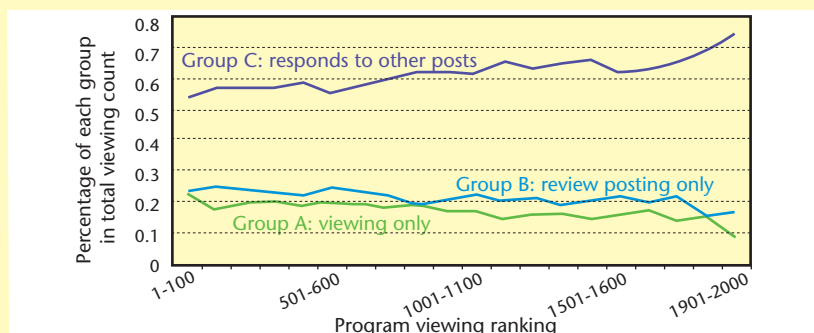
Figure 3: Percentage of each group in total program viewing count